

Ægis Questions

Davey and Goliath Throwdown, 2007

Round 1

Tossup 1: Math (Algebra) -- Computational (30 Seconds)

Colleen's scores on her calculus tests so far this semester are 82, 84, 92, 96, 93, 88, and 103. She needs an A for the class, and realizes that to get it, she needs a cumulative test grade of 98%, counting the final, which is weighted at three times the score of a chapter test. What percentage does Colleen need to get on the final to bring her cumulative test grade up to a 98%? Extra credit is available on the test.

Answer: **114 percent**

Bonus 1: Special Category (Black and White)

Answer the following musical questions, based on the category.

A: This album features 'Shoot to Thrill' and 'You Shook Me All Night Long'.

B: This band's breakout album was 'Elephunk' in 2003.

C: This band features Tony Iommi on guitar, Terence "Geezer" Butler on bass, Bill Ward on drums, and Ozzy Osbourne as the vocalist.

D: This band's first album, 'Shake Your Money Maker' was released in 1990, and featured the singles 'Hard to Handle' and 'She Talks to Angels'.

Answers: A: **Back in Black** B: **Black Eyed Peas** C: **Black Sabbath** D: **Black Crowes**

Tossup 2: Literature (Literature)

He was born in Minnesota, much like one of his most famous characters. A member of the Lost Generation along with Gertrude Stein and Ernest Hemingway, the only novel published after this author's death was *The Last Tycoon*. Name this author who penned *This Side of Paradise* and *Tender is the Night*, and created the characters Nick Carraway and Daisy Buchanan in *The Great Gatsby*.

Answer: **Francis Scott Key Fitzgerald**

Bonus 2: Social Studies (U.S. History)

Identify the following about the Liberty Bell.

A: Its inscription reads "Proclaim liberty throughout all the land unto all the inhabitants thereof". From what book of the bible does this verse originate?

B: The first time the bell was rung, it cracked. Outside of what building was it at the time?

C: The next time it was famously rung, it was announcing the opening of what 1774 event?

D: Prior to its most famous ringing at the reading of the Declaration of Independence, it rang following these battles, which featured 'the shot heard round the world'

Answers: A: **Leviticus** B: **Independence Hall** (also accept *Pennsylvania State House*) C: **First Continental Congress** (prompt on *Continental Congress*) D: **The Battles of Lexington and Concord**

Tossup 3: Science (Chemistry)

The stereo kind of these rotate polarized light in different ways, which is why they are referred to as "right-handed" or "left-handed." In organic chemistry, the structural kinds of these are distinguished by using numbers in the naming of compounds, as in one-propanol and two-propanol. Name this type of molecule which has the same formula as another molecule, but is structured in a different way.

Answer: **Isomer**

Bonus 3: Science (Biology)

Identify the following biologists.

A: He discovered cells by looking at cork under a microscope.

B: He is often called the "father of modern genetics" for his work with pea plants.

C: He falsely believed that physical changes that an organism acquired over its lifetime were transmitted to that organism's offspring.

D: He is commonly known as "the Father of Microbiology" for being the first person to observe single celled organisms.

Answers: A: **Robert Hooke** B: **Gregor Johann Mendel** C: **Jean-Baptiste Pierre Antoine de Monet, Chevalier de Lamarck** D: **Anton van Leeuwenhoek**

Tossup 4: Social Studies (World History)

You'd never believe it, but a poodle tail can have a huge effect on history. When the Germans invaded France in 1914, they were supposed to enter through Belgium and the "poodle tail" of Holland. Moltke, the man commanding the invasion, dictated instead that the right wing would enter farther south, in addition to removing units from that side. As a result, the right wing was stalled at the Marne, and the plan a failure. Identify this German strategy for World War I, which called for an encirclement of Paris and a quick end to the Western Front.

Answer: **The von Schlieffen Plan** (*pron. SCHLEEF-en*)

Bonus 4: Math (General)

Given a team's winning percentage and the number of games it played, figure out how many games it won. The winning percentage will be given in the same format as in the sports section of a newspaper.

A: A winning percentage of .625 with 16 games played.

B: A winning percentage of .575 with 40 games played.

C: A winning percentage of .727 with 11 games played.

D: A winning percentage of .667 with 162 games played.

Answers: A: **10 games** B: **23 games** C: **8 games** D: **108 games**

Tossup 5: Fine Arts (Visual Art)

The Olson House, which inspired the artist to paint this work, still stands, but the artist took some license with it, separating the barn from the house in the background of the painting. The foreground depicts a young woman with a paralyzing muscular affliction dragging herself on the ground to pick flowers from her garden. Name this painting by Andrew Wyeth.

Answer: **Christina's World**

Bonus 5: Literature (Literature)

Given a line from William Shakespeare's Hamlet, name the character who speaks it.

A: "Something is rotten in the state of Denmark."

B: "And this above all: To thine own self be true."

C: "The lady doth protest too much, methinks."

D: "I am but mad north-northwest. When the wind is southerly, I know a hawk from a hand-saw."

Answers: A: **Marcellus** B: **Polonius** C: **Gertrude** D: **Hamlet**

Tossup 6: Math (Geometry)

The net of a tesseract has eight of these solids, four stacking on top of each other and the other four covering each face of either of the two middle solids. This is similar to the net of the solid itself, which features six squares in a similar alignment. Name this Platonic solid that cannot be doubled using a straight edge and compass.

Answer: **Cube** (*accept regular hexahedron, prompt on hexahedron*)

Bonus 6: Fine Arts (Music)

Name the composers of the following operas.

A: Orfeo

B: Cosi fan tutti

C: Rigoletto

D: William Tell

Answers: A: **Claudio Monteverdi** B: **Wolfgang Amadeus Mozart** C: **Giuseppe Verdi** D: **Gioacchino Rossini**

Tossup 7: Literature (Literature)

After the issues surrounding Cecily's grandfather's will, Miss Prism's misplacement of a child twenty-eight years earlier, and the efforts of Jack and Algernon to have their names changed, Miss Prism and Dr. Chasuble, Gwendolen and Jack, and Cecily and Algernon are all united in bonds of love.

Name this play by Oscar Wilde.

Answer: **The Importance of Being Earnest**

Bonus 7: Science (Chemistry)

Assuming there are no lone electron pairs, give the VSEPR geometries of molecules with the following steric numbers, in other words, with the following number of atoms around their central atom. For example, two would be "linear."

A: 3

B: 4

C: 5

D: 6

Answers: A: **Trigonal planar** B: **Tetrahedral** C: **Trigonal bipyramidal** D: **Octahedral**

Tossup 8: Social Studies (Current Events)

This man had such a large lead over his opponent in the 2004 elections that he was helping out Democrats in other states. After the primaries he was supposed to face off against Jack Ryan, but Ryan became embroiled in scandal and was replaced by Alan Keyes. Name this current Illinois senator.

Answer: **Barack Obama**

Bonus 8: Social Studies (Other)

Given a description, identify the psychologist.

A: This Swiss constructivist supported the theory of cognitive development.

B: His brother Henry wrote The Turn of the Screw. This man was a firm advocate of pragmatism.

C: This father of psychoanalysis has a namesake "slip."

D: This Swiss man, who started analytical psychology, worked with Herman Hesse.

Answers: A: **Jean Piaget** B: **William James** C: **Sigmund Freud** (*froyd*) D: **Carl Gustav Jung**

Tossup 9: Science (Astronomy)

It started with cosmic inflation that created a quark-gluon plasma, which then combined into baryonic matter, and only 300,000 years later did hydrogen nuclei form. Its very beginning is not well-understood, before ten to the negative 33 seconds, a time interval that could be explained by quantum gravitation. Name this really important event that occurred 13.7 billion years ago.

Answer: **Big Bang**

Bonus 9: Math (Other)

A drawer has 3 green socks, 4 purple socks, 5 orange socks, and apparently no normal socks. Anyway, find the probability of the following events occurring, expressing your answers as fully reduced fractions.

A: Drawing a green sock, followed by an orange sock, without replacement.

B: Drawing a pair of purple socks with replacement.

C: Drawing an orange sock, followed by a purple sock, with replacement.

D: Drawing all three green socks in three draws without replacement.

Answers: A: 5/44 B: 1/9 C: 5/36 D: 1/220

Tossup 10: Special Category (East and West)

He won his second Best Director Oscar at age 74 making him the oldest director to do so. The virtual band Gorillaz have recorded two songs inspired by him; one song's title is his name, and another is the name of one of his famous characters. Identify this man whose name is an anagram for "Old West Action", and is famous for directing Mystic River and Million Dollar Baby in addition to his acting roles as The Man with No Name and Dirty Harry.

Answer: **Clint Eastwood, Jr.**

Bonus 10: Literature (Language Arts)

Let's play crossword puzzle. Given a clue and some of the letters, give the word.

A: Inactive or sluggish; six letters; first letter T, sixth letter D

B: Quiet or reserved; eight letters; first letter R, second letter E

C: Cliche; five letters; first letter B

D: Obvious; seven letters; fourth letter T, seventh letter T

Answers: A: Torpid B: Reticent C: Banal D: Blatant

HALFTIME

Tossup 11: Special Category (Black and White)

Some say that there is a comma in the title, some maintain there should not be. It has become associated with the Vietnam War due to its use in the ending credits of the film Full Metal Jacket and the opening credits of Tour of Duty. It is included on the US version of the album Aftermath, but not on the UK version. This song features use of musical experimentation, possibly in reaction to The Beatles, in the form of the use of a sitar. Identify this June 1966 Billboard Hot 100 number one single by The Rolling Stones.

Answer: **Paint it, Black**

Bonus 11: Math (Geometry)

Find the following for a sphere with a radius of one centimeter. Include units.

A: Surface Area

B: Volume

C: Circumference of largest circle on its surface

D: Volume of smallest cylinder containing the sphere

Answers: A: **4π square centimeters** B: **$\frac{4}{3}\pi$ cubic centimeters** C: **2π centimeters** D: **2π cubic centimeters**

Tossup 12: Social Studies (Geography)

It was known as the Six Grandfathers before it was given its more famous name in 1885. Designed by Gutzon Borglum, it is located in South Dakota. Name this landmark that features the faces of George Washington, Thomas Jefferson, Theodore Roosevelt, and Abraham Lincoln.

Answer: **Mount Rushmore**

Bonus 12: Literature (Literature)

Identify the authors of the following political treatises.

A: Mein Kampf

B: The Prince

C: Common Sense

D: The Art of War

Answers: A: **Adolf Hitler** B: **Niccolo Machiavelli** C: **Thomas Paine** D: **Sun-Tzu** (Accept Sun Wu or Chang Qing)

Tossup 13: Science (Biology)

First observed in 1842 in plant cells by Swiss botanist Karl Wilhelm von Nägeli, these molecules have sister pairs that are attached at a centromere. They are a single large macromolecule of DNA. Identify these molecules that cross over while arranged in tetrads and contain genes.

Answer: **Chromosomes**

Bonus 13: Social Studies (World History)

Given its time span and an event from the time period, name the Chinese dynasty.

A: 1027-256 B.C.; Warring States Period

B: 255-207 B.C.; burial of Terracotta Army

C: 202-220 B.C.; China officially declared a Confucian state

D: 618-845 A.D.; first Christian missionaries in China

Answers: A: **Zhou** B: **Qin** C: **Han** D: **Tang**

Tossup 14: Literature (Mythology)

He once tested his armies' morale by telling them that war should be abandoned; he had problems reconvincing them that it was a trick after they ran back to the ships, relieved. He was forced to sacrifice his daughter, Iphigeneia, (*if-uh-gen-i-uh*) to appease Artemis, and this act infuriated his wife, who killed him and Cassandra when they returned following the Trojan War. Name this Greek leader, whose son Orestes avenged his death by killing his murderer, Clytemnestra.

Answer: **Agamemnon**

Bonus 14: Science (Earth Science)

For each mineral, name what number it is assigned on the Mohs hardness scale.

A: Diamond

B: Fluorite

C: Talc

D: Quartz

Answers: A: **10** B: **4** C: **1** D: **7**

Tossup 15: Math (Other) -- Computational (30 Seconds)

John has a fair six sided die and a fair eight sided die, and he wants to know the expected value for the sum of the two dice. This can be found by constructing a table of values for the sum of the dice and finding the average of the values, or by finding the expected value of each die and adding them together. Using one of these or any other method, find the expected value of the sum of the dice.

Answer: **8**

Bonus 15: Special Category (East and West)

Identify the following regarding this category. Be more specific than "MLB" or "NFL". The moderator will not prompt incomplete answers.

A: It has the Arizona Cardinals, St. Louis Rams, San Francisco 49ers, and Seattle Seahawks.

B: It has the Atlanta Braves, Florida Marlins, New York Mets Philadelphia Phillies, and Washington Nationals.

C: It has Syracuse, UConn, Seton Hall, and Villanova.

D: It has Texas Christian, UNLV, San Diego State, and Brigham Young.

Answers: A: **NFC West** B: **National League East** C: **Big East Conference** D: **Mountain West Conference**

Tossup 16: Social Studies (U.S. History)

This man was the first president born west of the Appalachians, and the Kitchen Cabinet was during his term. His Secretary of State, Martin van Buren, ended up being his successor as president.

Name this man, known as Old Hickory, the seventh U.S. president.

Answer: **Andrew Jackson**

Bonus 16: Math (General)

Find the prime factorization of each of the following numbers. Express your answers in ascending order and using exponents. For example, the prime factorization of 12 is 2 squared times 3.

A: 1,764

B: 2,020

C: 2,431

D: 5,145

Answers: A: **2 squared times 3 squared times 7 squared** B: **2 squared times 5 times 101** C: **11 times 13 times 17** D: **3 times 5 times 7 cubed**

Tossup 17: Fine Arts (Music)

His third symphony was dedicated to a man, but was changed to "the memory of a great man." However, that man hadn't died - he had declared himself Emperor of France. Name this German composer of the Eroica Symphony, eight other symphonies, and the Moonlight Sonata.

Answer: **Ludwig van Beethoven**

Bonus 17: Literature (Literature)

Answer the following questions about the novel The Grapes of Wrath.

A: Name the author

B: Name the family whose story is the chief plot

C: The family drives to California in search of a better life. What state do they come from?

D: In which year did this novel win the Pulitzer Prize for fiction?

Answers: A: **John Steinbeck** B: **Joad** C: **Oklahoma** D: **1940**

Tossup 18: Science (Chemistry)

Its current definition was created in 1960, and is based on carbon-12 atoms. Originally created by Wilhelm Ostwald, an important number associated with this unit is named after an Italian chemist who also gives his name to a gas law relating volume and the number of these. Name this unit equal to 6.02 times ten to the 23rd particles, the SI base unit for "amount of substance."

Answer: **Mole**

Bonus 18: Social Studies (U.S. History)

Given a description, identify the Indian tribe.

A: This group was forced to march what became known as the "Trail of Tears" in the late 1830s.

B: This tribe, at one point led by Osceola, fought numerous wars against the United States Army during the 19th century.

C: This group was led by Sitting Bull and fought against Custer at the Battle of the Little Bighorn.

D: This tribe tried to flee to Canada under Chief Joseph but failed.

Answers: A: **Cherokee** B: **Seminole** C: **Sioux** D: **Nez Perce** (*nay PEER-say*)

Tossup 19: Literature (Literature)

It contains a famously short chapter with the single sentence, "My mother is a fish." Name this stream-of-consciousness work, which centers on the Bundren family, by William Faulkner.

Answer: **As I Lay Dying**

Bonus 19: Fine Arts (Visual Art)

One of the most famous works of the Italian Renaissance features representations of the greatest philosophers, scientists and mathematicians of classical antiquity.

A: This work is located in the Apostolic Palace of Vatican City. What is this work called?

B: Who painted this work?

C: What technique was used by the artist to produce it? It involves painting on wet plaster.

D: One of the central figures is carrying a copy of his "Timaeus". The other, a copy of his "Nichomachean Ethics". Identify both these men, one of whom was a student of the other.

Answers: A: **The School of Athens** B: **Raphael Sanzio da Urbino** C: **Buon Fresco** D: **Plato and Aristotle**

Tossup 20: Math (Algebra)

This value is negative whenever a parabola with a vertex above the x-axis opens up or a parabola with a vertex below the x-axis opens down. It is a perfect square whenever the x-intercepts of a parabola are rational numbers. It is zero whenever the vertex of a parabola is on the x-axis. Name this part of a the quadratic formula equal to b^2-4ac .

Answer: **Discriminant** (prompt on b^2-4ac)

Bonus 20: Science (Chemistry)

Of cesium, fluorine, hydrogen, or carbon, identify which element is being described.

A: This element has the highest electronegativity.

B: This element has the lowest electronegativity of the four elements.

C: This element's "14" isotope undergoes beta decay.

D: This element has the most electron shielding of the four elements.

Answers: A: **Fluorine** B: **Cesium** C: **Carbon** D: **Cesium**

TIEBREAKERS/REPLACEMENTS:**Tossup 21: Science (Physics)**

The angular type is equal to the cross product of the radius and the linear type. The linear type is conserved for a system when there is no external force on that system, and in fact, can be defined as the change in force per time. Measured in kilogram meters per second, name this quantity possessed by moving bodies, equal to mass times velocity, and symbolized p.

Answer: **Momentum**

Bonus 21: Literature (Language Arts)

Correctly spell the following words.

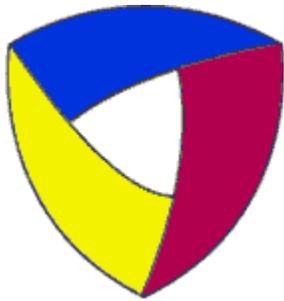
A: Fuchsia

B: Crepuscular

C: Meringue

D: Peripatetic

Answers: A: **FUCHSIA** B: **CREPUSCULAR** C: **MERINGUE** D: **PERIPATETIC**



Ægis Questions

Davey and Goliath Throwdown, 2007

Round 2

Tossup 1: Social Studies (Geography)

The first man to see it was Jean Nicolet, who did so in 1634. The St. Joseph, White, and Kalamazoo rivers enter it from its eastern side, while it connects to another lake at the Straits of Mackinac. In 1900, the flow of the Chicago River was reversed so this lake would stop being polluted. Name this Great Lake, the only one that has a border with Illinois.

Answer: **Lake Michigan**

Bonus 1: Science (Chemistry)

Name the following distinctive chemical elements.

A: With an atomic number of 35, this halogen exists at room temperature as a red-orange liquid.

B: With atomic number 80, this silvery metal is a liquid at room temperature.

C: With atomic number 53, this halogen is a purple solid at room temperature.

D: With atomic number 54, this noble gas's name comes from the Greek for "stranger."

Answers: A: **Bromine** B: **Mercury** C: **Iodine** D: **Xenon**

Tossup 2: Math (Other) -- Computational (30 Seconds)

Express your answer as a fully reduced fraction. Find the probability of drawing a pair of Jacks with two draws from a standard deck of cards, without replacement. It may help you to remember that 51, the number of cards in the deck after the first draw, is divisible by 3.

Answer: **1/221**

Bonus 2: Literature (Literature)

Given some works by a romantic poet, name the poet.

A: The Chimney Sweeper; The Tyger

B: The Siege of Corinth; Don Juan

C: Ozymandias; Ode to the West Wind

D: Ode on a Grecian Urn; Ode to a Nightingale

Answers: A: **William Blake** B: **Lord Byron** (*accept George Byron, 6th Baron Byron*) C: **Percy Bysshe Shelley** D: **John Keats**

Tossup 3: Fine Arts (Music)

This work was originally written as a piece of chamber music for three violins and basso continuo, but it has been arranged for a variety of ensembles. Its chord progression is one of the most frequently used in popular music, and it was used as the main theme for the film Ordinary People. Name this piece, commonly played at weddings, by Johann Pachelbel.

Answer: **Canon in D**

Bonus 3: Special Category (East and West)

Identify the following titles that relate to the category.

A: A movie features a giant steam-powered mechanical spider and a soundtrack featuring Will Smith.

B: A book by Ellen Raskin that was awarded the Newbery Medal in 1979.

C: This 1994 Comedy Western is the last movie John Candy was working on before his death.

D: This 1959 Alfred Hitchcock movie is a tale of mistaken identity starring Cary Grant.

Answers: A: **Wild Wild West** B: **The Westing Game** C: **Wagons East!** D: **North by Northwest**

Tossup 4: Literature (Literature)

The author is quoted as saying of this book, "I aimed at the public's heart, and by accident I hit it in the stomach." This novel is a major critique of capitalism and a prevalent example of muckraking journalism. First published in 1906, this work follows Lithuanian immigrant Jurgis (*YOOR-gis*) Rudkis and his experiences in the Back of the Yards neighborhood of Chicago. Identify this novel, which highlights the meatpacking industry, was instrumental in the establishment of the FDA and which was written by Upton Sinclair.

Answer: **The Jungle**

Bonus 4: Social Studies (U.S. History)

Identify the following firsts in United States Cabinet history.

A: Alexander Hamilton was the first Secretary of this department which, since the introduction of the Department of Homeland Security, no longer governs the Secret Service.

B: She was the first woman to hold a Cabinet position and one of two Cabinet members to hold their positions for the entire FDR presidency.

C: In 1989, Edward Derwinski became the first to hold the Secretary position of this Cabinet Department, authorized by President Reagan.

D: The two most recent Secretaries of this Department, Alexis Herman and Elaine Chao, became the first African-American and Asian-American women, respectively, in the Cabinet.

Answers: A: **Department of the Treasury** B: **Frances Perkins** C: **Department of Veterans Affairs**

D: **Department of Labor**

Tossup 5: Science (Biology)

This phylum's members often form irregularly shaped colonies attached to an underwater surface. One of the most primitive animals, these lack many typical animal features including nerves and locomotion. These creatures feature no type of physical symmetry. Identify this phylum, members of which are aquatic and have a porous skeleton.

Answer: **Porifera** (*do not accept sponges as it is not a phylum*)

Bonus 5: Math (Geometry)

Find the surface areas of the following solids.

A: A sphere with radius 3 inches.

B: An triangular prism with depth 9 inches and side lengths of 9, 12, and 15 inches.

C: A rectangular prism with length 3, width 5, and height 4, all in inches.

D: A cube with side length 3 inches.

Answers: A: **36 pi square inches** B: **432 square inches** C: **94 square inches** D: **54 square inches**

Tossup 6: Social Studies (U.S. History)

This was the first state to declare independence from Britain, exactly two months before the Declaration of Independence was officially signed. This state was attached to the Articles of Confederation, as it provided for all states equally. As a result, they refused to send a delegate to the Constitutional Convention, and they were the last to ratify the document. What state has the longest official name, but has the least area?

Answer: **State of Rhode Island and Providence Plantations**

Bonus 6: Science (Physics)

In physics, many special names are given to the change in certain quantities. Name these changes.

A: The change in velocity over time.

B: The change in energy.

C: The change in momentum over time.

D: The change in energy necessary to raise the temperature of a gram of a substance by one degree.

Answers: A: **Acceleration** B: **Work** C: **Impulse** D: **Specific heat**

Tossup 7: Math (Algebra) -- Computational (30 Seconds)

To start for the Johnson High Scholastic Bowl A-Team, Jeff needs to average 5 tossups per game at a tournament. In the morning at the tournament, he scored 6, 3, 2, 7, and 4 tossups per game. How many tossups does he need to answer correctly in the 3 afternoon games to earn his spot on the A-team?

Answer: **18** tossups

Bonus 7: Social Studies (World History)

Identify the countries led by the following historical leaders.

A: Kaiser Wilhelm II and Helmut Kohl.

B: Georges Clemenceau and Francois Mitterand.

C: Vittorio Orlando and Giovanni Giolitti.

D: The composer Jan Paderewski and Jaroslaw Kaczynski (*YAR-oh-slaw ka-ZYN-ski*).

Answers: A: **Germany** B: **France** C: **Italy** D: **Poland**

Tossup 8: Literature (Literature)

He was killed when a bird dropped a tortoise on his bald head, mistaking it for a rock that would crack the tortoise open. In 480 BC he fought at the Battle of Salamis, which was to become the subject of his play The Persians. Besides that play, only six of his other plays, of which there were originally about seventy-six, survive. Identify this author of Agamemnon, The Libation Bearers and The Eumenides, together known as the Oresteia trilogy, as well as Seven Against Thebes, and Prometheus Bound.

Answer: **Aeschylus**

Bonus 8: Fine Arts (Visual Art)

Given a piece of Spanish artwork, name the artist.

A: Las Meninas

B: The Shootings of May Third, 1808

C: The Burial of Count Orgaz

D: Persistence of Memory

Answers: A: **Diego Velazquez** B: **Francisco de Goya** C: **El Greco** (*accept Domenicos Theotokopoulos*) D: **Salvador Dali**

Tossup 9: Special Category (Black and White)

The National Sea Life Center in the United Kingdom, while trying to induce several pairs of tropical sharks to mate, decided as a joke to pipe his hits into the shark tanks. Handlers were surprised to discover that a pregnancy resulted. This man was also featured as a guest star on The Simpsons for the 'Whacking Day' episode. Speakers were placed on the ground and his deep voice was used in order to attract snakes. Identify this "Man with the Velvet Voice" and "Walrus of Love" who is known for his hits such as "You're The First, The Last, My Everything" and "Can't Get Enough Of Your Love, Babe".

Answer: **Barry White**

Bonus 9: Literature (Mythology)

Name the following Norse divinities from the description.

A: He was the wisest and the chief god, thought of as the ruler of the universe.

B: He was the god of thunder and lightning, and his most important job was to protect gods and goddesses from giants.

C: She was the goddess of love and fertility and assisted women in childbirth. She is also known to have started seithr, a kind of witchcraft.

D: He was the god of beauty, goodness, wisdom, peace, and light.

Answers: A: **Odin** (*accept Wotan*) B: **Thor** C: **Freyja** (*FRAY-uh*) D: **Balder**

Tossup 10: Science (Chemistry)

It can be defined as Boltzmann's constant multiplied by the natural log of the number of possible configurations of a group of molecules. Used to calculate Gibbs free energy and Helmholtz free energy, it was considered "lost energy" by Sadi Carnot (*car-NOH*), who first addressed its existence. Name this quantity from thermodynamics which measures the disorder of a system.

Answer: **Entropy**

Bonus 10: Math (General) -- Three Parts

Find the next number in each of the following sequences.

A: 2, 6, 30, 210, 2310, blank.

B: 1, 1, 2, 4, 7, 13, blank.

C: 1, 2, 5, 15, 52.5, 210, 945, blank.

Answers: A: **30030** (*product of prime numbers*) B: **24** (*sum of preceding three numbers*) C: **4725** (*the multiplication from number to number increases by 0.5*)

HALFTIME

Tossup 11: Literature (Language Arts)

Its name comes from the Greek for "a short clause" or "something cut off," and it can also refer to the small interval between two enharmonic notes. The serial or Oxford type is standard in American use, but is optional and often omitted in British English. Name this punctuation mark which is prominent in the title of a book by Lynne Truss, "Eats, Shoots, and Leaves".

Answer: **Comma**

Bonus 11: Math (Algebra)

Evaluate the following expressions.

A: Two to the fourth power times three to the second power.

B: Seven factorial divided by five factorial.

C: The log base 2 of 16.

D: The binary expression one zero one plus one one one. Express your answer in decimal form.

Answers: A: **144** B: **42** C: **4** D: **12**

Tossup 12: Science (Earth Science)

They can come in the alpine or continental varieties, and often weigh millions of tons. In the last few decades, they have started to retreat, which has many scientists alarmed. The cause of corries, moraines, and drumlins, name this geologic feature that is essentially a large block of ice.

Answer: **Glacier**

Bonus 12: Social Studies (Current Events) -- Five Parts

Given the name of an incumbent Senator who lost a recent reelection attempt and the person he lost the election to, name the state they ran in:

A: George Allen and Jim Webb

B: Conrad Burns and Jon Tester

C: Rick Santorum and Bob Casey, Jr.

D: Mike DeWine and Sherrod Brown

E: Lincoln Chafee and Sheldon Whitehouse

Answers: A: **Virginia** B: **Montana** C: **Pennsylvania** D: **Ohio** E: **Rhode Island**

Tossup 13: Fine Arts (Visual Art)

He was loosely involved with many of the art movements of the early twentieth century, including Cubism and Fauvism. His work, much of which is inspired by the folktales and Biblical themes of his Jewish heritage, often is supposed to represent his own vision of the world as seen through a stained-glass window. Name this creator of I and the Village.

Answer: **Marc Chagall**

Bonus 13: Special Category (Black and White)

Identify the following performers:

A: Some people mistake his wife for being his sister, due to the fact that he took her last name. He is also one of the members of the supergroup The Raconteurs.

B: He played Dean Ben Lewis in the 2006 movie Accepted in addition to his normal recurring segment on The Daily Show.

C: He is featured as an airplane steward in the music video for the Foo Fighters "Learn to Fly" in addition to videos for "Low" and "The One". He is better known for his film roles and for his band, Tenacious D.

D: He was one of TV's most loved and hated characters from 1990 to 1998, playing Steve Urkel on Family Matters.

Answers: A: **Jack White** B: **Lewis Black** C: **Jack Black** D: **Jaleel White**

Tossup 14: Social Studies (World History)

This monarch reigned from 1603 to 1625. He obtained his original crown on July 29, 1567 at the age of thirteen months. He is the man who devised the first Union Jack, which at the time, lacked the red 'X' shape of St. Patrick's Cross, having only St. Andrew's Cross and St. George's Cross. He was the monarch that Guy Fawkes and the Gunpowder Plot associated with him tried to assassinate, and his persecution of perceived 'witches' served as inspiration for Shakespeare in writing Macbeth. Identify this man, who, following the 'Union of the Crowns' became the first Stuart monarch of England, succeeding Elizabeth I.

Answer: **James I of England** (also accept *James VI of Scotland*)

Bonus 14: Science (Biology)

Identify these cell structures related to photosynthesis.

A: The reactions of photosynthesis occur in this organelle.

B: That organelle is filled with membranous sacs called these.

C: Those sacs are configured in stacks called these.

D: This is the thick liquid surrounding those stacks, located between the inner membrane of the organelle and the outer membrane of the internal stacks.

Answers: A: **Chloroplast** B: **Thylakoid** C: **Grana** D: **Stroma**

Tossup 15: Math (General) -- Computational (30 Seconds)

A shirt costs \$12, a pair of jeans costs \$21, and sales tax is a convenient 5%. If the shirt is priced at a 15 percent discount and the jeans are priced at a 20 percent discount, what is the total, final cost of 1 shirt and 1 pair of jeans?

Answer: **\$28.35**

Bonus 15: Literature (Literature)

Name the following characters from Miguel de Cervantes' Don Quixote.

A: Originally named Aldonza Lorenzo, this character, the lady of Don Quixote's dreams, never physically appears in the book.

B: Quixote's donkey, his name comes in part from the Spanish word for a nag.

C: This donkey of Sancho Panza's disappears and reappears, in Part One without any explanation.

D: In Part Two of Don Quixote, this man is credited with the authorship of the original Don Quixote. The title Cid alerts Quixote that he is a Moor.

Answers: A: **Dulcinea de Toboso** (or *del Toboso*) B: **Rocinante** C: **Dapple** (prompt on "Sancho Panza's donkey" or similar) D: **Cid Hamete Benengeli**

Tossup 16: Science (Biology)

Composed of a large and a small subunit, they are made of protein and RNA. They exist in mitochondria and chloroplasts, the cytoplasm, and on the rough endoplasmic reticulum. Name this cell organelle that assists in the translation of RNA into protein.

Answer: **Ribosome**

Bonus 16: Math (Other)

Answer the questions about the graph of the function y equals negative four plus the absolute value of the quantity x minus three:

A: Find the x - and y -coordinates of the lowest point

B: Find both x -intercepts

C: Find the y -intercept

D: Which letter of the alphabet does the graph look like?

Answers: A: **(3,-4)** B: **-1 and 7** (accept $(-1,0)$ and $(7,0)$) C: **-1** (or $(0,-1)$) D: **V**

Tossup 17: Special Category (East and West)

It is spanned by eight bridges including the Hell Gate Bridge and Throgs Neck Bridge. It is a tidal strait that connects Long Island Sound on its north end to Upper New York Bay on its south end. It is north of the boroughs of Queens and Queens, and south of Manhattan and the Bronx. Identify this river that apparently smells pretty nasty, as seen when Kramer decided to start taking daily swims in it on an episode of Seinfeld.

Answer: **East River**

Bonus 17: Social Studies (U.S. History) -- Five Parts

The United States Constitution includes some fractions. Use fractions to answer the following questions,

A: In the method that has been used for all amendments, how many members of each House of Congress must vote for a measure before it goes to the states?

B: Using the same method for amendments, how many states must approve the amendment after the vote in Congress?

C: How many members of each House of Congress are needed to override a veto?

D: What fraction of a state's slaves were originally counted for Congressional apportionment?

E: What fraction of the Senate is elected every two years?

Answers: A: **Two-Thirds** B: **Three-Fourths** C: **Two-Thirds** D: **Three-Fifths** E: **One-Third**

Tossup 18: Literature (Literature)

"Perhaps it is better to wake up after all, even to suffer, rather than to remain a dupe to illusions all one's life." This quote represents the personal journey of a woman vacationing near New Orleans, who feels her sexuality awaken after having an affair with a man named Arobin. Name this novel about Edna Pontellier, written in 1899 by Kate Chopin (*sho-PAN*).

Answer: **The Awakening**

Bonus 18: Fine Arts (Music)

Name the composers of the following works.

A: Danse Macabre

B: "Surprise" Symphony

C: Finlandia

D: Pictures at an Exhibition

Answers: A: **Camille Saint-Saens** B: **Franz Joseph Haydn** C: **Jean Sibelius** D: **Modest Mussorgsky**

Tossup 19: Math (Geometry) -- Computational (30 Seconds)

A circle is inscribed in a square with an area of 16 units. What is the exact area of the circle.

Answer: **4 pi units**

Bonus 19: Science (Chemistry)

Name these different measurements of the concentration of a solution.

A: The most common measurement of concentration, this is equal to the number of moles of solute per liter of solution.

B: This similar-sounding measurement is the number of moles of solute per kilogram of solvent.

C: In acid/base chemistry, this measurement is the number of equivalents per liter of solution.

D: This measurement can apply to substances other than solutions, and is equal to the number of moles of one species divided by the total number of moles.

Answers: A: **Molarity** (*not molality*) B: **Molality** (*not molarity*) C: **Normality** D: **Mole ratio**

Tossup 20: Social Studies (Other)

This 1976 Nobel prize winner advocated for monetarism in A Monetary History of the United States. He was involved with the show Free to Choose, and also wrote Capitalism and Freedom. Name this conservative American economist best known for his support of laissez-faire government policy who died in November 2006.

Answer: **Milton Friedman**

Bonus 20: Literature (Literature)

Identify these facts about the play Our Town.

A: This man, who also wrote the Skin of Our Teeth, is the play's author.

B: This is the town the play is set in. Please give the city and state.

C: This boy is son of the town's doctor, and is an excellent baseball player. He is married to the daughter of the editor of the newspaper. Please give the first name.

D: This character is the wife of the answer to part C. She dies during childbirth, and spends act 3 in the cemetery with other deceased characters. Please give the first name.

Answers: A: **Thornton Wilder** B: **Grover's Corners, New Hampshire** (*prompt on Grover's Corners*)

C: **George Gibbs** (*prompt on last name*) D: **Emily Webb** (*prompt on last name*)

TIEBREAKERS/REPLACEMENTS:**Tossup 21: Social Studies (U.S. History)**

Said to be the only government building on time and under budget, the elaborate artwork of this building was merely not mentioned to politicians by Edward Casey until it was too late before opening in 1897. Usable by any registered individual over eighteen with a research purpose, this institution has numerous allusions on knowledge including many to Minerva, such as a great mosaic leading to the Visitor's gallery inside the Jefferson Building of this world-record holding research center.

Answer: **Library of Congress** (*Before mentioned, accept Jefferson Building - being the most famous and first of the three parts*)

Bonus 21: Science (Biology)

Name these phyla of plants.

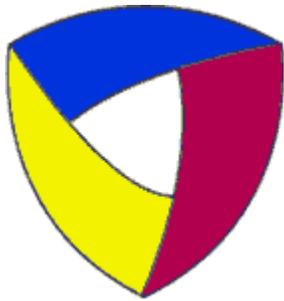
A: Lacking vascular tissue, these simplest plants are often seen growing on trees or rocks.

B: These plants have vascular tissue, and can be identified by the frond leaves that appear on the top.

C: These plants spread their seeds as cones, and include evergreens.

D: These flowering plants spread their seeds in fruits with seed coats.

Answers: A: **Mosses** (*accept bryophytes*) B: **Ferns** (*accept pteridophytes*) C: **Conifers** (*accept gymnosperms*) D: **Angiosperms**



Ægis Questions

Davey and Goliath Throwdown, 2007

Round 3

Tossup 1: Science (Astronomy)

About every 30 years, a Great White Spot temporarily develops on this planet's surface. Its rings were first observed by Galileo, but were not understood to be made up of particles until Maxwell showed that they could not be solid. It has 56 moons, including Rhea and Titan. Named after Kronos, identify this second-largest planet in the solar system, the sixth planet from the sun.

Answer: **Saturn**

Bonus 1: Math (Other)

Find the probabilities of each of the following events. Assume all dice to be fair, six-sided dice, and express all fractions as fully reduced fractions.

- A: Rolling a sum of 13 with two dice.
- B: Rolling a sum of 7 with two dice.
- C: Rolling a sum of 3 with two dice.
- D: Rolling a sum of 18 with three dice.

Answers: A: **0** B: **1/6** C: **1/18** D: **1/216**

Tossup 2: Social Studies (U.S. History)

Construction on it was begun in 1744, and in 1793 it was no longer serving its original purpose. That purpose was as a mission, which is ironic considering its most famous moment. Name this San Antonio structure where, in 1836, General Santa Anna and his troops defeated nearly 200 Texans, including Davey Crockett.

Answer: **Alamo**

Bonus 2: Fine Arts (Music)

In 1812 Napoleon invaded Russia, and an overture was written about it.

- A: Who wrote the 1812 Overture?
- B: What unusual sound-making devices are used in the finale?
- C: What national anthem of Russia is used to symbolize the Russian army?
- D: What national anthem of France is used to symbolize the French army?

Answers: A: **Peter Ilyich Tchaikovsky** (accept *Pyotor Ilyich Tchaikovsky*) B: **Cannons** C: **God Save the Tsar** D: **La Marseillaise**

Tossup 3: Literature (Literature)

This author's hometown of Sauk Centre, Minnesota was the basis for the town of Gopher Prairie, the setting for one of his most famous novels. He was the first American to win a Nobel Prize for Literature, doing so with *Babbitt*. Name this author of *Arrowsmith*, *Elmer Gantry*, and *Main Street*.

Answer: **Sinclair Lewis**

Bonus 3: Science (Biology)

Given the name of a vitamin deficiency, name the vitamin whose lack causes it. Give your answer in terms of letters and numbers, not the full name.

- A: Night blindness
- B: Scurvy
- C: Rickets
- D: Beri beri

Answers: A: **Vitamin A** B: **Vitamin C** C: **Vitamin D** D: **Vitamin B1** (*prompt B*)

Tossup 4: Special Category (East and West)

It is located in New York, on a scenic overlook of the Hudson River, about fifty miles north of New York City. First occupied in 1778, it was established into its current form in 1802. All attendees are required to take at least three classes in engineering. Collectively, its graduates are known as "The Long Gray Line". Identify this college, who in 2000 adopted the 'Black Knights' as its official mascot, though it is still referenced in sports media as 'Army'.

Answer: **West Point** (also accept United States Military Academy or USMA on early buzz)

Bonus 4: Social Studies (Geography)

Given a world capital, name the country.

A: Asmara

B: Riga

C: Ouagadougou

D: Khartoum

Answers: A: **Eritrea** B: **Latvia** C: **Burkina Faso** D: **Sudan**

Tossup 5: Math (Algebra) -- Computational (30 Seconds)

It takes Jeff six minutes to finish a twenty question assignment, and it takes Bill eight minutes to do the same assignment. How long would it take them to do the assignment if they worked together?

Answer: **24/7 minutes** (accept 3 3/7 minutes)

Bonus 5: Literature (Literature) -- Three Parts

The tale of Dr. Faustus is a much written about subject. Given a title, name the author who penned it.

A: Faust

B: Doctor Faustus; the novel

C: Doctor Faustus; the play

Answers: A: **Johann Wolfgang Goethe** B: **Paul Thomas Mann** C: **Sir Christopher Marlowe**

Tossup 6: Social Studies (World History)

This man, an opponent of Descartes (*day-CART*), once said "I feel, therefore I am," which was written in his Confessions. He first gained fame with his essay Discourse on the Sciences and the Arts, and he was also an influential character in the French Revolution. Name this French philosopher who wrote Emile (*eh-MEEL*) and The Social Contract.

Answer: **Jean-Jacques Rousseau**

Bonus 6: Special Category (Black and White)

Identify the following black objects.

A: The Black Stone, possibly a meteorite, is one of the four cornerstones of this cubelike structure, important in Islam.

B: This jewel encrusted bird was covered with layers of black enamel over the years to hide its value, in a novel by Dashiell Hammett.

C: It took place this year on November 24.

D: It was used by US soldiers in Vietnam because they thought the Vietnamese viewed it as a symbol of death. The Bicycle Company provided crates of these, which were common sights in soldiers' helmets as a sort of anti-peace sign. It's also a song by Motörhead.

Answers: A: **The Kaaba** B: **The Maltese Falcon** C: **Black Friday** D: **Ace of Spades**

Tossup 7: Science (Biology)

It is a combination alcohol and steroid. Many other steroids are synthesized from this, which is a common component of animal cell membranes. Surprisingly, most of it is not dietary in origin; it is synthesized internally. Identify this molecule, which comes in two different varieties, LDLs and HDLs and which may contribute to atherosclerosis.

Answer: **Cholesterol**

Bonus 7: Math (Geometry)

Find the areas of the triangles assuming that each has a shortest side of length 4 centimeters. Depending on the triangle, there may be more than one shortest side of length 4 centimeters. Include units.

A: Equilateral.

B: 45 degrees, 45 degrees, 90 degrees right triangle.

C: 30 degrees, 60 degrees, 90 degrees right triangle.

D: Similar to a 3, 4, 5 right triangle.

Answers: A: **4 Root 3 square centimeters** B: **8 square centimeters** C: **8 Root 3 square centimeters** D: **32/3 square centimeters** (also accept 10 and 2/3 or 10.6 repeating)

Tossup 8: Fine Arts (Visual Art)

Czech model Eva Herzigova appeared as the title character in a staging of this work at the 2006 Winter Olympics Opening Ceremonies. The painting was lucky to escape Savonarola's bonfires, given its pagan themes, and it now resides in the Uffizi Gallery in Florence. The left of the painting features two of the Zephyrs blowing the title character to shore. Name this work by Sandro Botticelli.

Answer: **The Birth of Venus**

Bonus 8: Science (Chemistry)

Many regions of the periodic table have specific names. Give the name that refers to the elements in the following regions.

A: The leftmost column.

B: The second-leftmost column.

C: The rightmost column.

D: The lower of the two 14-element rows usually written below the rest of the periodic table.

Answers: A: **Alkali metals** (NOT "alkaline earth metals") B: **Alkaline earth metals** (NOT "alkali metals") C: **Noble gases** D: **Actinide(s) series**

Tossup 9: Literature (Literature)

A lesser known character of this name is a ghost character, appearing as a companion of Tybalt and speaking no lines in Romeo and Juliet. The more famous character of this name is determined to become the master of his wife, depriving her of sleep and food after their marriage. Name this character whose seemingly cruel actions are done in order to adjust Kate from her life as a shrew.

Answer: **Petruchio**

Bonus 9: Social Studies (U.S. History)

Given a description, name the Chief Justice.

A: He is the current Chief Justice.

B: This man was the first Chief Justice.

C: He was the only man to be Chief Justice after serving as President.

D: This Chief Justice handed down the decision in Brown v. Board of Education, and also headed the commission that looked into the death of John F. Kennedy.

Answers: A: **John Glover Roberts Jr.** B: **John Jay** C: **William Howard Taft** D: **Earl Warren**

Tossup 10: Math (General) -- Computational (30 Seconds)

Find the determinant of the matrix with top row 1, 3, 4, middle row -1, 0, 2, and bottom row 10, 2, -5. It may help to remind you that two different calculations may be left out due to the zero in the middle cell.

Answer: 33

Bonus 10: Literature (Language Arts)

Correctly spell the following words.

A: Strychnine (*STRIK-nine*)

B: Parquet (*par-KAY*)

C: Obsolescence

D: Denouement (*day-noo-MAHN*)

Answers: A: STRYCHNINE B: PARQUET C: OBSOLESCENCE D: DENOUEMENT

HALFTIME

Tossup 11: Math (Geometry) -- Computational (30 Seconds)

Express your answer as a fully reduced mixed number. A cake is sliced into six, equal pieces. Find the volume of one slice of the cake if it has a density of 0.5 grams per cubic centimeter, is 10 centimeters tall, and has a circumference of 20π centimeters. It may help you to know that density equals mass divided by volume, and that finding the volume of the slice is easily done by dividing the total volume of the cake by 6.

Answer: **83 and one-third grams**

Bonus 11: Social Studies (U.S. History)

I'll name a person or people from Bill Clinton's Cabinet. You name the position they held or department they headed.

A: Janet Reno

B: Warren Christopher and Madeleine Albright

C: Richard Riley

D: Les Aspin, William Perry, and William Cohen

Answers: A: **Attorney General** B: **Secretary of State** C: **Secretary of Education** D: **Secretary of Defense**

Tossup 12: Special Category (Black and White)

It begins with the narrator on a farm in England, who then moves on to describe his hard life working in London, and lastly with him telling of his happy retirement in the country. Each chapter of it features a lesson or moral about the kindness, sympathy, and understanding that is shown to the narrator and others like him. It is the author's first and only novel, written while she was confined to her house as an invalid. The author ended up living just long enough to see her work become a success. Identify this equine novel that was published just five months before the death of its author, Anna Sewell.

Answer: **Black Beauty: The Autobiography of a Horse**

Bonus 12: Science (Physics)

Give the charges of the following particles.

A: Proton

B: Neutron

C: Muon

D: Alpha particle

Answers: A: **+1** B: **0** C: **-1** D: **+2**

Tossup 13: Literature (Mythology)

The son of Everes and Chariclo, he was given his notable talent by Zeus, after Hera made him blind because he said women enjoyed sex more. However, a poem by Callimachus states that he was made blind because he viewed Athena naked while she was bathing. Name this blind man who was most famous for making a prophecy regarding Oedipus.

Answer: **Tiresias**

Bonus 13: Fine Arts (Visual Art)

Given a piece of art by a British artist, name the artist.

A: Dedham Vale: Morning

B: A Rake's Progress

C: Ulysses deriding Polyphemus

D: Mrs. Peter William Baker

Answers: A: **John Constable** B: **William Hogarth** C: **Joseph Mallord William Turner** D: **Thomas Gainsborough**

Tossup 14: Science (Earth Science)

Shaped like a crescent, the water within its crescent is named the Tethys Sea. Formed about 280 million years ago, it began to separate around 160 million years ago, mostly completing its fragmentation by about 60 million years ago. Name this location whose name comes from the Greek for "all earth," the most famous of the prehistoric supercontinents.

Answer: Pangaea

Bonus 14: Literature (Literature)

Give the middle names of the authors who wrote the following works.

A: Vanity Fair

B: The Lion, The Witch and the Wardrobe

C: "The Love Song of J. Alfred Prufrock"

D: "Richard Cory"

Answers: A: **William Makepeace Thackeray** B: **Clive Staples Lewis** C: **Thomas Stearns Eliot** D: **Edwin Arlington Robinson**

Tossup 15: Social Studies (Current Events)

The New York Daily News has called him an "oil pimp," and he has offered oil to China in return for votes for his nation to the UN Security Council. After 41 ballots and no clear winner, he agreed to Panama as a compromise. Name this man, who on September 20th called George W. Bush "the devil," and on December 3rd was re-elected as President of Venezuela.

Answer: **Hugo Chavez**

Bonus 15: Math (General)

Nikki has only pennies and nickels, and she has fifty coins total. Given the total value of the coins, figure out how many pennies she has.

A: 58 cents

B: \$1.30

C: \$1.98

D: \$2.46

Answers: A: **48 pennies** B: **30 pennies** C: **13 pennies** D: **1 penny**

Tossup 16: Fine Arts (Music)

The title character falls in love with Radames (*RAH-duh-meas*), a military officer, who loves her back. The daughter of Amonasro, she is a slave of Amneris, who does not know her true identity. When Radames is condemned to death, the title character decides to die with him. Name this opera written in 1871, though not for the opening of the Suez Canal, the story of an Ethiopian princess by Giuseppe Verdi.

Answer: Aida

Bonus 16: Science (Biology)

Identify the following completely random things about biology.

A: This term refers to the cell's total hereditary endowment of DNA.

B: The tendency for molecules of any substance to spread out into the available space.

C: A larger locomotive appendage which makes wave like movements, used for getting around.

D: Members of this group are freshwater or marine unicellular organisms. They are encased within a unique cell wall made of silica, which can be quite beautiful and ornate.

Answers: A: **Genome** B: **Diffusion** C: **Flagellum** D: **Diatoms**

Tossup 17: Math (Other) -- Computational (30 Seconds)

A card game features 50 cards, 40 black and 10 red. You pay 1 dollar to play; if you draw a black card, you lose everything, and if you draw a red card, you win 7 dollars. What is the expected profit or loss on this game, once your dollar has been paid? The expected value is found by finding the probability of each potential outcome, multiplying it by the monetary gain of the corresponding outcome, and summing them together.

Answer: **40 cents or 0.4 dollars**

Bonus 17: Special Category (East and West)

Answer the following about East and West Germany.

A: West Germany won this in 1954, 1974, and came in 2nd in 1982, 1986 and won it again in 1990.

B: The Berlin Wall fell on November 9 of this year.

C: West Germany's capital was this city, in which Beethoven was born in 1770.

D: This figure skater for East Germany won Gold Medals at the 1984 and 1988 Olympics.

Answers: A: **FIFA World Cup** B: **1989** C: **Bonn** D: **Katarina "Kati" Witt**

Tossup 18: Literature (Literature)

John Quincy Adams for breaking away from the Federalist Party; Daniel Webster for speaking in favor of the compromise of 1850; Thomas Hart Benton for staying in the Democratic party; Sam Houston for speaking against the Kansas-Nebraska Act; Edmund G. Ross for voting against the impeachment of Andrew Johnson; Lucius Lamar for eulogizing Charles Sumner; George Norris for supporting the Presidential campaign of Catholic Democrat Al Smith; and Robert A. Taft for criticizing the Nuremberg Trials. These eight senators and their actions in the face of pressure are described in what 1956 Pulitzer Prize-winning book by a future U.S. President?

Answer: **Profiles in Courage**

Bonus 18: Social Studies (World History)

Answer these questions about events that took place on December 9.

A: 1531: What figure appeared to indigenous Mexican Juan Diego?

B: 1851: What organization, which features a triangle in its logo, representing the principles of 'mind', 'body' and 'spirit', saw its first establishment in North America?

C: 1992: A separation is announced between Princess Diana of Wales and who?

D: 1950: Harry Gold is sentenced to prison for his role in helping pass along information to the Soviet Union about what project?

Answers: A: **Virgin of Guadalupe or Our Lady of Guadalupe** B: **Young Men's Christian Association or YMCA** C: **Prince Charles of Wales** D: **Manhattan Project**

Tossup 19: Science (Chemistry)

Start with a known amount of some solution in a flask, and an excess of another solution in a buret. Add the solution in the buret one drop at a time, until the ion concentrations are equal at the equivalence point. Commonly performed with phenolphthalein (*fee-nol-THAY-leen*), name this laboratory technique that allows one to determine the concentration of an acid by adding a base of known concentration.

Answer: **Titration**

Bonus 19: Math (Algebra)

Find the values for the following expressions when x equals 4.

A: 9 times the quantity $3x$ minus 12.

B: 5 times the quantity x plus 26.

C: x raised to the 5th power minus x raised to the 3rd power.

D: x over 40 plus x over 50.

Answers: A: **0** B: **150** C: **960** D: **9/50** (also accept 0.18)

Tossup 20: Social Studies (U.S. History)

The main event took place on December 16th many years ago, and there was a follow-up on the next March 7th. The participants did not want to cause any indirect damage, so they used brooms to sweep up after they were done and replaced a broken padlock the next day. It involved the Dartmouth, the Eleanor, and the Beaver and over three hundred crates. Name this action carried out by the Sons of Liberty disguised as Mohawk Indians.

Answer: **Boston Tea Party**

Bonus 20: Literature (Literature)

Identify the authors of the following works:

A: The Divine Comedy

B: The Metamorphosis

C: The Hunchback of Notre Dame

D: Peer Gynt

Answers: A: **Dante Alighieri** B: **Franz Kafka** C: **Victor Hugo** D: **Henrik Ibsen**

TIEBREAKERS/REPLACEMENTS:**Tossup 21: Literature (Literature)**

Its 2005 revival won a Tony Award for Best Revival of a Play, and the 1992 film version, starring Jack Lemmon, Al Pacino, and Ed Harris, garnered some Oscar nominations. The play itself won the 1984 Pulitzer Prize in Drama. Name this play about unethical real estate salesmen by David Mamet.

Answer: **Glengarry Glen Ross**

Bonus 21: Math (Algebra)

Identify the properties used to prove the following statements, including the operation they involve.

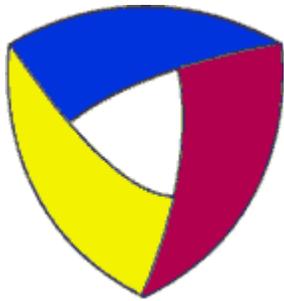
A: X multiplied by 1 equals X .

B: X multiplied by Y equals Y multiplied by X .

C: The quantity X plus Y , close quantity, plus Z equals X plus the quantity Y plus Z .

D: The quantity X minus Z , close quantity, divided by Y , equals X over Y minus Z over Y .

Answers: (Accept logical equivalents that include the required words.) A: **Identity property of multiplication** (prompt on "One property" or "Zero and One property") B: **Commutative property of multiplication** C: **Associative property of addition** D: **Distributive property of division**



Ægis Questions

Davey and Goliath Throwdown, 2007

Round 4

Tossup 1: Literature (Literature)

Its creator claimed that its name means "water runs through flat land." Its seat is the town of Jefferson. Name this fictional county, the setting of such works as *Intruder in the Dust* and *The Sound and the Fury*, created by William Faulkner.

Answer: **Yoknapatawpha County**

Bonus 1: Science (Earth Science)

Name the scientific instrument used to measure the following.

A: Wind speed

B: Atmospheric pressure

C: Relative humidity

D: Water depth, an instrument used in ships

Answers: A: **Anemometer** B: **Barometer** C: **Hygrometer** D: **Fathometer**

Tossup 2: Math (Geometry) -- Computational (30 Seconds)

Ignore units. Find the area of the triangle in the coordinate plane whose vertices are located at (0,2), (2,0), and (4,4).

Answer: **6 units**

Bonus 2: Special Category (East and West)

Answer the following about the Wild West. No giant, steam-powered, mechanical spiders involved, sorry.

A: He was one of the preeminent Western writers, producing *Riders of the Purple Sage*.

B: Wyatt, Virgil and Morgan Earp fought along side 'Doc' Holliday at this location in Tombstone, Arizona Territory.

C: This man was killed holding a pair of Aces and a pair of Eights, which came to be known as a 'Dead man's hand'.

D: This famous town in the Black Hills of South Dakota was actually an illegal city, due to laws about settling on Indian lands.

Answers: A: **Zane Grey** B: **Gunfight at the O.K. Corral** C: **James Butler "Wild Bill" Hickok** D: **Deadwood, SD**

Tossup 3: Social Studies (U.S. History)

He was the first Supreme Commander of NATO, and the knowledge he gained of foreign affairs proved to be invaluable in the post-World War 2 world climate. After that, he entered the realm of politics, and was courted by both parties, before eventually becoming a Republican. He served two terms as President, with the Interstate Highway System as one of his major projects. Name this 1950's US President who was known affectionately as "Ike."

Answer: **Dwight David Eisenhower**

Bonus 3: Math (Algebra) -- Five Parts

Solve these systems of equations.

A: $x+y=1$ & $4x+5y=1$

B: $x+2y=29$ & $2x+3y=47$

C: $2x+3y=32$ & $2x-3y=8$

D: $x+y=12$ and $x-y=2$

Answers: (Also accept in ordered pair form.) A: B: **x equals 4 and y equals -3** C: **x equals 7 and y equals 11** D: **x equals 10 and y equals 11** E: **x equals 7 and y equals 5**

Tossup 4: Science (Biology)

In its unmodified form, it is translucent, bendable and resilient, and quite tough. Because of these characteristics and its biodegradability, it is often used as surgical thread. It is a polysaccharide and is one of the main components in the cell walls of fungi. Identify this molecule that forms the the exoskeletons of arthropods and the shells of many crustaceans.

Answer: **Chitin**

Bonus 4: Literature (Literature)

Answer these questions about Beowulf.

A: This Danish king built a mead-hall named Heorot.

B: Unfortunately, this monster terrorizes the mead-hall until Beowulf comes and kills him.

C: Next, Beowulf has to dive to the bottom of the lake and kill that monster's mother, finding that this magical sword given to him by Unferth doesn't work.

D: In the final battle of the poem, Beowulf kills one of these creatures, though he dies from his wounds after the battle.

Answers: A: **Hrothgar** B: **Grendel** C: **Hrunting** D: **Dragon**

Tossup 5: Fine Arts (Music)

His first major opera, Rienzi, is not often heard, though all of his later operas are. He wrote very little other than his operas, though he did make other contributions, including founding the Beirut Festival House, and the concept of leitmotifs (*LIGHT-moh-teefs*). He is accused of being racist, particularly in his anti-Semitic essays and his opera Parsifal. Also the composer of Lohengrin and The Flying Dutchman, name this German composer who most famously wrote the Ring Cycle of four operas that are played frequently today.

Answer: **Richard Wagner**

Bonus 5: Social Studies (Current Events)

Name these people who served in the Iraq Study Group, which issued its report this week:

A: This Republican co-chair used to be Secretary of State

B: This Democratic co-chair also co-chaired the 9/11 Commission

C: This only woman in the group is a former Supreme Court Justice

D: This only African American in the group was a close advisor to President Clinton

Answers: A: **James "Jim" Baker** B: **Lee Hamilton** C: **Sandra Day O'Connor** D: **Vernon Jordan, Jr**

Tossup 6: Literature (Language Arts)

Initially used to describe something related to the seasons, it began during the Tokugawa period when it was made famous by Matsuo Basho. Its most famous English was by the Imagists, this type of poem is actually just the first three lines of a larger tanka. Name this Japanese poem, that contains lines with five, seven, and five syllables, respectively.

Answer: **Haiku** (*accept hokku*)

Bonus 6: Science (Chemistry)

Name these gas laws.

A: Pressure is inversely proportional to volume.

B: Pressure is directly proportional to temperature.

C: Temperature is directly proportional to volume.

D: Symbolically expressed $P V = n R T$, its name suggests correctly that it does not hold for real gases.

Answers: A: **Boyle's law** B: **Gay-Lussac's law** C: **Charles's law** D: **Ideal gas law** (*do not accept combined gas law*)

Tossup 7: Social Studies (Geography)

This island nation is quite small, with roughly 295,000 people according to a 2005 estimate. It has a very active volcano system, and its most famous volcano, which has erupted 4 times in the last 60 years, is Hekla. Name this country in the north Atlantic, whose parliament is the Althing (*all-TING*), that has its capital at Reykjavik (*RAY-kee-uh-VIK*).

Answer: **Republic of Iceland**

Bonus 7: Fine Arts (Visual Art)

Given a work of pop art, identify the artist.

A: Campbell's Soup Can

B: Whaam!

C: White Flag

D: Lipstick (Ascending) on Caterpillar Tracks

Answers: A: **Andy Warhol** B: **Roy Lichtenstein** C: **Jasper Johns Jr** D: **Claes Oldenburg**

Tossup 8: Math (Algebra) -- Computational (30 Seconds)

Note: Two answers are required. Find the x coordinates of the points of intersection of the lines y equals $13x$ plus 2, and y equals $3x$ squared plus 12. It will probably help you to use either the quadratic formula or factoring to solve for x in this situation.

Answer: **x equals 1 or $10/3$**

Bonus 8: Literature (Mythology)

Answer the following about the Twelve Labors of Hercules.

A: After killing the Nemean Lion, this cousin of Hercules was so frightened that he demanded Hercules prove his successes outside of town.

B: In order to kill the Hydra, Hercules was aided by this faithful servant, who helped him burn off the heads.

C: One of his two labors which sent him to Arcadia was to capture this creature.

D: The other labor that sent him to Arcadia was to drive away these deadly airborne creatures.

Answers: A: **Eurystheus** B: **Iolus** C: **Erymanthean boar** D: **Stymphalian birds**

Tossup 9: Science (Chemistry)

First detected on the sun, it was first isolated on Earth from cleveite minerals, where it accumulates as a product of uranium radioactivity. Used in diving gas mixtures to reduce the amount of nitrogen present, it is one of the two components of the most common type of gas laser. It has no triple point, though near absolute zero it is a superfluid. Name this chemical element, the lightest noble gas, with symbol He.

Answer: **Helium**

Bonus 9: Math (Other)

I'll give a description for a set of numbers. You should give the most common name for the set:

A: All counting numbers and the number zero

B: Any integer divided by any nonzero integer

C: The sum of any real number and any imaginary number

D: Any real number that does not solve any polynomial equation with integer coefficients.

Answers: A: **Whole** B: **Rational** C: **Complex** D: **Transcendental**

Tossup 10: Special Category (Black and White)

It was designed by James Hoban, who won the rights to do so in a contest. Originally built without them, the North Portico was added to it in 1824, and the South was built in 1829. It was for the most part gutted by a fire in 1814, which led to a common misconception about the source of its name. Identify this building, that has a design largely based on the first and second floors of the Leinster House, a palace in Dublin, Ireland, which during the early 20th century added additional office space for the Cabinet, in the West Wing.

Answer: **The White House**

Bonus 10: Social Studies (World History)

Given a brief description, identify these Spanish conquistadores.

A: This man conquered Montezuma and the Aztecs.

B: This European founded Lima after defeating the Incans.

C: This man was the first European to see the Pacific Ocean.

D: This man was the first European to see the Mississippi River.

Answers: A: **Hernan Cortes** (*accept Hernan Cortez*) B: **Francisco Pizarro** C: **Vasco Nunez de Balboa** D: **Hernando de Soto** (*accept Fernando de Soto*)

HALFTIME

Tossup 11: Math (Other) -- Computational (30 Seconds)

Express your answer as a fully reduced fraction. What is the probability of drawing a seven or a spade with one draw from a standard deck of cards? It is important to remember that the seven of spades fulfills both criteria for the problem, but is only one card in the deck.

Answer: 4/13

Bonus 11: Literature (Language Arts)

Correctly spell the following words.

A: Daiquiri

B: Sinecure (*SIN-i-kyoor*)

C: Nihilism (*NILE-ism*)

D: Lycanthrope

Answers: A: DAIQUIRI B: SINECURE C: NIHILISM D: LYCANTHROPE

Tossup 12: Social Studies (World History)

The defending side was commanded not by the ailing King Charles VI himself, but by Constable Charles d'Albret instead. Taking place on October 25, 1415, St. Crispian's Day, this battle is notable for the English army's use of Longbowmen to overcome the extraordinary odds against them.

Identify this battle of The Hundred Years' War that was immortalized as the centerpiece to William Shakespeare's play 'Henry V'.

Answer: The Battle of Agincourt

Bonus 12: Science (Biology)

Answer the following completely random biology questions.

A: This is the general term for catalytic proteins.

B: Adenine and guanine are specific members of this family of nitrogenous bases that is not pyrimidines.

C: A nitrogenous base, pentose, and a phosphate group are the ingredients to make one of these.

D: The most abundant organic compound on Earth, it is a major component of the cell walls in plants.

Answers: A: Enzymes B: Purines C: Nucleotides D: Cellulose

Tossup 13: Special Category (East and West)

Both first and last names required. He sent Alex Trebek back to his own dimension by saying his name backwards. His crazy schemes range from zombie prevention - he filled graves with concrete to prevent their rise - to nearly making a bottle of beer head of sanitation. He is game for shouting matches, if necessary, and hates baseball cards. Name this man who loves his taffy, who apparently starred in Batman long before becoming mayor of Quahog (*KO-hog*) on Family Guy.

Answer: Adam West

Bonus 13: Fine Arts (Music)

Name the composers of the following works.

A: The Bartered Bride

B: Swan Lake

C: The Brandenburg Concertos

D: Washington Post March

Answers: A: Bedrich Smetana B: Pyotr Ilyich Tchaikovsky C: Johann Sebastian Bach D: John Phillip Sousa

Tossup 14: Literature (Literature)

In this 1888 poem, a town has been let down by the titular character after he cannot come through in the clutch. The protagonist is such a great player that he does not swing at the first two pitches, which isn't a good idea considering the result. Name this work by Ernest Thayer in which a mighty Mudville baseball player strikes out.

Answer: **Casey at the Bat**

Bonus 14: Social Studies (U.S. History)

Identify the following Senators from the 37th United States Congress, which convened in 1861.

A: The President of the Senate was, of course, the Vice President elected in that election. He was the first Republican President of the Senate.

B: This youngest Vice President in American history was elected as a Senator from Kentucky and was expelled from the Senate in December 1861.

C: This man ran for the Republican nomination for President, but dropped out to support Lincoln. He was a Senator for two days before accepting the position of Secretary of the Treasury in Lincoln's Cabinet.

D: This Democratic Senator from Tennessee resigned on March 4th, 1862, but returned in 1875 to become the only President to serve in the Senate after leaving the White House.

Answers: A: **Hannibal Hamlin** B: **John C. Breckinridge** C: **Salmon P. Chase** D: **Andrew Johnson**
(prompt on partial answer)

Tossup 15: Science (Chemistry)

At this point, only quantum vibrations remain. According to the Third Law of Thermodynamics, it can never be reached, though laboratories have gotten within half a billionth of a degree Celsius. Name this temperature equal to negative 459.67 degrees Fahrenheit or negative 273.15 degrees Celsius, the lowest theoretically possible temperature.

Answer: **Absolute zero**

Bonus 15: Math (Geometry)

Find the area of the following shapes. Do not worry about units.

A: A square with diagonal length of 2.

B: A circle with circumference of 2.

C: A regular hexagon with side length of 2.

D: An isosceles triangle with side lengths of 2, 5, and 5.

Answers: A: **2 square units** B: **1 over pi square units** C: **12 square units** D: **2√6 square units**

Tossup 16: Social Studies (U.S. History)

This treaty gave a part of Upper Silesia to Poland and made the League of Nations responsible for the Saarland. Although it was backed by President Wilson, Senator Henry Cabot Lodge was adamantly opposed to it, which made it hard to get the treaty recognized in the United States. Name this peace treaty that gave Alsace and Lorraine back to France, made Germany pay 33 billion dollars in reparations, and ended World War I.

Answer: **Treaty of Versailles** (*ver-SI*)

Bonus 16: Science (Physics)

Name these temperature scales.

A: Named after the title of William Thomson, this absolute temperature scale is one of the SI base units.

B: This temperature scale is named after a Swedish astronomer who determined 0 and 100 based on the freezing and boiling points of water.

C: This temperature scale is named after a German physicist who took 100 to be body temperature and 0 the lowest temperature he could make in his laboratory with a salt solution.

D: This absolute temperature scale mainly used by engineers, has degrees that are 1.8 times the size of those of the standard SI temperature unit.

Answers: A: **Kelvin** B: **Celsius** (*accept centigrade*) C: **Fahrenheit** D: **Rankine**

Tossup 17: Math (General) -- Computational (30 Seconds)

You want to find the positive square root of 9,409. There are two possible digits that the ones digit could be, based on the ones digit in 9,409. Knowing this and that 100 squared is 10,000, find the square root of 9,409.

Answer: **97**

Bonus 17: Special Category (Black and White)

Answer the following about Snow White.

A: The wicked queen, Snow White's stepmother, frequently talks to this inanimate object.

B: In the Brothers Grimm tale about Snow White, what is the wicked queen forced to wear that kills her?

C: There are actually two Snow Whites in Grimm fairy tales. The one from numbers one and two has her dwarves, and the other has a sister named this.

D: In that story without the dwarves, what type of animal has the prince been turned into?

Answers: A: **Magic Mirror** B: **A pair of red hot iron boots** (*accept clear knowledge equivalents*) C: **Rose Red** D: **Bear**

Tossup 18: Fine Arts (Visual Art)

Painted in 1784, the three Roman triplets depicted are off to battle against another set of triplets from the rival city of Alba Longa. In the painting, they are reaching out to receive swords from their father. Name this painting currently at the Louvre and popular during the French Revolution, painted by Jacques-Louis David.

Answer: **Oath of the Horatii**

Bonus 18: Social Studies (Geography)

Given a description, name the African river.

A: The longest river in the world, it flows through Khartoum and Cairo.

B: The second longest river on the continent, it used to be known as the Zaire River.

C: This river, Africa's third longest, flows into the Gulf of Guinea. Its biggest tributary is the Benue River.

D: This fourth longest river on the continent flows into the Indian Ocean after passing through, among other countries, Zambia and Mozambique.

Answers: A: **Nile** B: **Congo River** C: **Niger River** D: **Zambezi River**

Tossup 19: Literature (Literature)

He wrote about a title figure that tries to deduce a god's powers in "Caliban Upon Setibos", and later wrote a poem about a court painter of a King of France, "Andrea del Sarto." In "Pippa Passes", the title figure comments that "God's in his heaven - all's right with the world." Identify this poet of "My Last Duchess" and husband of Elizabeth Barrett.

Answer: **Robert Browning** (*prompt on Browning*)

Bonus 19: Math (Algebra)

Factor the following expressions completely.

A: $X^2 + 20x + 99$

B: $X^2 + 42x - 400$

C: $2x^2 + 9x + 9$

D: $6x^2 - 19x + 10$

Answers: (*Accept quantities that are switched around.*) A: **The quantity x plus 11 times the quantity x plus 9** B: **The quantity x plus 50 times the quantity x minus 8** C: **The quantity $2x$ plus 3 times the quantity x plus 3** D: **The quantity $3x$ minus 2 times the quantity $2x$ minus 5**

Tossup 20: Science (Biology)

Named for the Greek for "good nut," they first developed about two billion years ago. Unlike their lesser-developed relatives, they can sexually reproduce by fusing, and most contain vesicles, chloroplasts, mitochondria, and an endomembrane system. Name this type of cell that has membrane-bound organelles.

Answer: **Eukaryote**

Bonus 20: Literature (Literature)

Given a pair of titles, identify their French author:

A: The Red and the Black, The Charterhouse of Parma

B: The Man in the Iron Mask, The Three Musketeers

C: Germinal, Nana

D: Madame Bovary, Sentimental Education

Answers: A: **Stendhal** (*Accept Marie-Henri Beyle*) B: **Alexandre Dumas, pere** C: **Emile Zola** D: **Gustave Flaubert**

TIEBREAKERS/REPLACEMENTS:**Tossup 21: Math (Algebra) -- Computational (30 Seconds)**

Include units. How much time will elapse before two airplanes are at the same height if one plane starts at an altitude of two thousand feet and rises at eighteen feet per second, and the other plane starts at an altitude of three thousand feet and drops at twenty-two feet per second?

Answer: **25 seconds**

Bonus 21: Science (Biology)

Answer these questions about RNA.

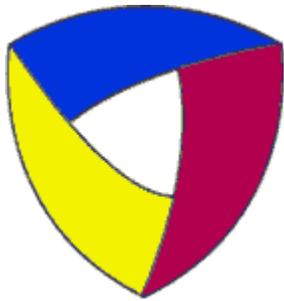
A: What is the sugar molecule in every RNA nucleotide?

B: In RNA, what nucleic acid bonds with adenine?

C: What type of RNA folds into a hairpin shape, attaching one end to specific amino acids?

D: What is the process by which genetic information is copied from DNA to RNA?

Answers: A: **Ribose** B: **Uracil** C: **Transfer RNA** (*accept tRNA*) D: **Transcription**



Aegis Questions

Davey and Goliath Throwdown, 2007

Round 5

Tossup 1: Math (Algebra) -- Computational (30 Seconds)

What are the coordinates of the vertex of the parabola $x^2 - 4x - 21$? It may help you to know that the x coordinate of the vertex is at the midpoint of a line segment with endpoints on the parabola - for example, a line segment bounded by the x -intercepts of the parabola.

Answer: **-2, -9** (accept x equals -2 and y equals -9, but do not prompt on partial answer)

Bonus 1: Social Studies (U.S. History)

Given a president, name the political party to which he belonged.

A: Thomas Jefferson

B: Andrew Jackson

C: William Henry Harrison

D: Abraham Lincoln

Answers: A: **Democratic-Republican** B: **Democratic** C: **Whig** D: **Republican**

Tossup 2: Special Category (East and West)

The movie version won the Academy Award for Best Picture in 1930. In it, the main character is killed, and simultaneously a dispatch is sent out, noting that nothing is new in the location he was fighting. As opposed to glorifying the heroics and bravery of war, this work focuses on Paul Bäumer, and his enduring constant bombardment. Identify this novel by Erich Maria Remarque (*ra-MARK*).

Answer: **All Quiet on the Western Front**

Bonus 2: Science (Physics)

Given the units of a physical quantity from classical mechanics, name the quantity. For example, if I say kilograms, you say mass.

A: Inverse seconds

B: Coulomb

C: Pascal

D: Candela

Answers: A: **Frequency** (accept angular velocity) B: **Electric charge** C: **Pressure** D: **Luminous intensity** (do not accept similar answers)

Tossup 3: Literature (Literature)

Its subtitle is *Principe Galeotto*, and it opens with a simple declaration; in the year 1348, the plague arrived in Florence. In an attempt to escape the plague, seven ladies and three gentlemen travel to the countryside, and pass their time there by telling stories. Name this work where 100 stories are told over the course of a fortnight, written by Giovanni Boccaccio.

Answer: **The Decameron**

Bonus 3: Social Studies (World History)

Answer the following questions that happened on December 9th in world history.

A: In 1946, this series of law proceedings began in Germany. They ended with death sentences for 24 convicts, though many were converted into prison sentences.

B: Due in part to his work with the Solidarity labor movement, Lech Walesa became the first directly elected President of this nation in 1990.

C: In 1905, this nation passed a law official separating church and state. The Alsace-Lorraine (*all-sahs lore-enn*) is not governed by this law, as it was not a part of this nation in 1905.

D: In 1961, this republic named for a nearby lake became independent from Britain. Three years later, it united with Zanzibar to form Tanzania.

Answers: A: **Nuremberg War Trials** B: **Poland** C: **France** D: **Tanganyika** (*Tang-uh-neek-a*)

Tossup 4: Science (Physics)

They require only one input force, and apply it over a greater distance for more effectiveness, which can be measured as their mechanical advantages. Working through either force or torque, name this kind of machine whose basic types include the screw, wedge, wheel and axle, inclined plane, pulley, and lever.

Answer: Simple machine

Bonus 4: Fine Arts (Visual Art)

Given a painting and a year, identify the artist.

A: Knight, Death and the Devil, 1513

B: The Night Watch, 1642

C: Starry Night, 1889

D: Liberty Leading the People, 1830

Answers: A: Albrecht Dürer B: Rembrandt Harmenszoon van Rijn C: Vincent van Gogh D: Eugène Delacroix

Tossup 5: Math (Geometry) -- Computational (30 Seconds)

Include units. Find the total surface area of an octahedron with each edge length equal to one centimeter. It may help you to know that an octahedron is a three-dimensional figure that is one of the Platonic solids. Its surface consists of eight triangles, and, if all of its edge lengths are equal, then all of the triangles are equilateral.

Answer: 2 root 3 (accept 2 times the square root of 3 or 2 radical 3)

Bonus 5: Literature (Literature)

Identify the following works by their first lines:

A: It is a truth universally acknowledged, that a single man in possession of a good fortune, must be in want of a wife.

B: Call me Jonah.

C: When he was nearly thirteen, my brother Jem got his arm badly broken at the elbow.

D: It was a bright cold day in April, and the clocks were striking thirteen.

Answers: A: Pride and Prejudice B: Cat's Cradle C: To Kill a Mockingbird D: 1984

Tossup 6: Social Studies (World History)

By name, they were Yao Wenyuan, Wang Hongwen, Zhang Chunqiao, and perhaps most famously, Jiang Qing. All four were arrested in a 1976 coup by Hua Guofeng and given long jail sentences, the last two dying in 2005. Name these three men and one woman, Mao Zedong's wife, four Chinese communists who were blamed for the Cultural Revolution.

Answer: The Gang of Four

Bonus 6: Math (Other)

You are rolling two fair six sided dice. Find the probability that the sum of these dice satisfies the following events. Express your answers as fully reduced fractions.

A: The sum is a perfect number.

B: The sum is greater than six.

C: The sum is odd.

D: The sum is between seven and ten, inclusive.

Answers: A: 5/36 B: 7/12 C: 1/2 D: 1/2

Tossup 7: Literature (Literature)

In this novel, Eponine's (*EP-oh-NEEN's*) love for Marius is unrequited, while the love between Marius and Cosette is not. Before their marriage, however, they have to overcome a failed revolution and the attempts by Inspector Javert (*zhuh-VARE*) to capture Cosette's acting father. Name this work that centers around the 1832 French Revolution, written by Victor Hugo.

Answer: **Les Miserables** (*leh MEEZ-ur-AHBL*)

Bonus 7: Special Category (Black and White)

Answer the following about 'The Great White North'.

A: What country is referred to as 'The Great White North'?

B: Identify the capital of this country, which is the country's fourth largest city.

C: Identify the current Prime Minister of this country.

D: This, the most populous province of the Maritimes is located off the country's southeastern coast.

Answers: A: **Canada** B: **Ottawa** C: **Stephen Harper** D: **Nova Scotia**

Tossup 8: Science (Earth Science)

During this period, flowering plants became more prevalent, as some conifers began to die out. Mammals existed, though the land was mainly dominated by reptiles. Beginning about 145 million years ago, this period ended 65 million years ago after a major extinction that killed all the dinosaurs. Name this geologic period that ended the Mesozoic era, coming after the Triassic and Jurassic periods.

Answer: **Cretaceous Period**

Bonus 8: Literature (Language Arts) -- Three Parts

Rhetorical devices can be said to appeal to audiences in one of three main ways, all given Greek names.

A: Generally used to refer to calm emotions, these are the emotions expressed by someone addressing an audience.

B: This term, which refers to violent emotions, is for the feeling the speaker hopes the audience will feel.

C: This word, from the Greek for "reason," was said by Zeno to be a rational principle.

Answers: A: **Ethos** B: **Pathos** C: **Logos**

Tossup 9: Literature (Mythology)

The daughter of Zeus and Hera, she served the gods and goddesses their food and drink at Mount Olympus. Ganymede took over for her after she married Heracles, and her name means "prime of life." Name this Greek goddess, whose Roman equivalent is Juventas, the goddess of youth.

Answer: **Hebe**

Bonus 9: Social Studies (U.S. History)

Identify these Civil War battles.

A: This single-day battle in Maryland had twenty-three thousand casualties and took place just before the Emancipation Proclamation.

B: This 1863 battle in Pennsylvania included Pickett's Charge and was won by Union General Meade.

C: This 1863 battle in Virginia was embarrassing to the Union, which was led by General Hooker.

D: This 1862 battle in the Northwest corner of Arkansas was a Union victory.

Answers: A: **Antietam** (*accept Sharpsburg*) B: **Gettysburg** C: **Chancellorsville** D: **Pea Ridge** (*accept Elkhorn Tavern*)

Tossup 10: Fine Arts (Music)

The role of the Queen was sung by the composer's sister-in-law at its premiere. The Queen gets the protagonist to go after Sarastro so the Queen can be reunited with her daughter, Pamina. Name this opera by Wolfgang Amadeus Mozart about Tamino and the title object.

Answer: **The Magic Flute** (*accept Die Zauberflote*)

Bonus 10: Literature (Literature)

Identify the nationality of the following authors.

A: Gabriel Garcia Marquez

B: Chinua Achebe

C: Nadine Gordimer

D: Jean-Jacques Rousseau

Answers: A: **Colombian** B: **Nigerian** C: **South African** D: **Swiss** (*do not accept French*)

HALFTIME

Tossup 11: Fine Arts (Visual Art)

Some of its stronger images are of a bull, a horse and a lightbulb; all of which are located on the left half of the painting. The basis for it was an April 26, 1937 bombing run. Francisco Franco called in German support in the form of the Luftwaffe (*LOOFT-vaf-fah*) to terrorize civilians and demoralize his opposition. Identify this painting that was a centerpiece of the 1937 World's Fair in Paris by Pablo Picasso.

Answer: **Guernica**

Bonus 11: Social Studies (Geography) -- Three Parts

South Africa has three capitals. Identify them based on a description.

A: Its administrative capital.

B: Its legislative capital.

C: Its judicial capital.

Answers: A: **Pretoria** B: **Cape Town** C: **Bloemfontein**

Tossup 12: Math (General) -- Computational (30 Seconds)

(Read the numbers digit by digit.) Convert the binary number 1 0 1 1 0 into decimal. Remember that binary is base two, which makes each digit, from right to left, stand for a power of two equal to its distance from the right. Count the rightmost digit as 2 to the zeroth power.

Answer: **22**

Bonus 12: Science (Biology)

Answer these questions about genetic disorders.

A: Some diseases, like Down Syndrome, are caused by having three of a particular chromosome, called this type of disorder.

B: Having the wrong number of chromosomes is due to this type of error in chromosome separation occurring when the parents' germ cells are created.

C: Many genetic disorders are sex-linked, like color-blindness. Men are more prone to these because they are often on this sex chromosome, of which they only get one copy, unlike females.

D: Sometimes, women only get one of that chromosome as well, making it their only sex chromosome, and resulting in this genetic disorder.

Answers: A: **Trisomy** B: **Nondisjunction** C: **X chromosome** D: **Turner's syndrome**

Tossup 13: Social Studies (Geography)

This river starts in Switzerland and flows through Europe to the North Sea. It was very important during World War II, and the Allies seized a usable bridge over it at Remagen in 1945, which allowed them to finish off Germany. Name this river that creates a border between Germany and France before entering the Netherlands.

Answer: **Rhine River**

Bonus 13: Special Category (East and West)

Identify the following about the Eastern Bloc.

A: This country will be joining the EU on January 1. It has its capital at Bucharest.

B: This country will also be joining the EU on January 1, 2007. The Hagia Sophia is located in this country.

C: Liszt and Bartók hail from this country, which has cuisine that is often associated with paprika.

D: The Sudetenland that was ceded to Nazi Germany was a part of this current country, which was created in 1993.

Answers: A: **Romania** B: **Republic of Bulgaria** C: **Republic of Hungary** D: **Czech Republic**

Tossup 14: Social Studies (U.S. History)

Until 1850, it was used as an execution site for convicts. It is 31 acres, and was formed mostly by landfill mass. Currently it is shared by New York and New Jersey, but is under the jurisdiction of the US National Parks Service as part of the Statue of Liberty National Monument. Millions of tourists have visited the site, which now commemorates the 600,000 immigrants who passed through this Immigration Station, which closed its doors in 1954.

Answer: **Ellis Island**

Bonus 14: Fine Arts (Music)

Name the composers of the following works.

A: The Planets

B: The Firebird

C: Hungarian Rhapsodies

D: Symphony of a Thousand

Answers: A: **Gustav Holst** B: **Igor Stravinsky** C: **Franz Liszt** D: **Gustav Mahler**

Tossup 15: Science (Chemistry)

It is performed by many biological processes to store energy, as in sugar molecules. If you have trouble distinguishing it from a similar process, you might recall that "Leo the lion says Ger." Undergone by oxidizing agents as their oxidation number is lowered, name this process which is half of "re-dox," through which electrons are gained.

Answer: **Reduction**

Bonus 15: Math (Geometry)

Answer the following questions about a rectangle that is four centimeters wide and five centimeters long. Include units.

A: What is the length of the longest segment that can be drawn inside the rectangle?

B: What is the area of the largest circle that can be drawn inside the rectangle?

C: What is the area of the largest triangle that can be drawn inside the rectangle?

D: What is the area of an ellipse that has vertices located at the midpoints of the sides of the rectangle?

Answers: A: **Root 41 centimeters** B: **4π square centimeters** C: **10 square centimeters** D: **5π square centimeters**

Tossup 16: Special Category (Black and White)

She was last seen alive on the evening of January 9, 1947, in the lobby of the Biltmore Hotel in downtown Los Angeles. On January 15, her body was discovered in a vacant lot in the Leimert Park neighborhood of Los Angeles, cut in half at the waist and mutilated. Neo-noir author James Ellroy based a 1987 book on the murdered woman. Identify the more commonly known name of Elizabeth Short who, in a recently released Brian De Palma film was portrayed by Mia Kirshner.

Answer: **Black Dahlia** (*accept Elizabeth Short before "more commonly known"*)

Bonus 16: Math (General)

Calculate the following combinations in nCr form.

A: 4 C 2

B: 8 C 2

C: 8 C 6

D: 7 C 6

Answers: A: **6** B: **28** C: **28** D: **7**

Tossup 17: Science (Biology)

Many of these produce secondary compounds, including pigments that reduce harmful amounts of sunlight or powerful toxins that reduce their chances of being eaten. The larvae of a surprising number of lepidopterans feed exclusively on them. This symbiotic relationship is usually formed between members of the divisions Ascomycota and Chlorophyta. Identify this affiliation between a fungus and a partner that uses photosynthesis, which is usually a green algae.

Answer: **Lichens**

Bonus 17: Literature (Mythology)

Answer the following questions about mythological metamorphoses.

A: Arachne was changed into a spider by this Greek goddess.

B: Zeus changed himself into this animal to seduce Leda.

C: Zeus changed himself into this animal to seduce Europa.

D: Apollo appeared as a shower of gold to this woman.

Answers: A: **Athena** B: **swan** C: **white bull** (*Prompt on bull*) D: **Danae**

Tossup 18: Math (Other) -- Computational (30 Seconds)

Give your answer as a fully reduced fraction. What is the probability that a roll of two six-sided dice will give a sum of either 6, 7, or 8? It may help you to know that 6 and 8 have the same probability of appearing and that 7 is more probable than either 6 or 8.

Answer: **4/9**

Bonus 18: Science (Chemistry)

Give the mass, in atomic mass units, of the heaviest particle resulting from the specified decays.

A: Uranium-235 undergoes fission, creating two neutrons, krypton-91, and a barium atom.

B: Uranium-238 undergoes alpha decay.

C: Thorium-236 undergoes beta negative decay.

D: Hafnium-175 undergoes electron capture.

Answers: A: **142 amu** B: **234 amu** C: **236 amu** D: **175 amu**

Tossup 19: Social Studies (Other)

He taught pigeons to play table tennis and kept his infant daughter in a climate-controlled enclosure based on the belief that external stimuli, not internal motivations, determine behavior. Name this leading proponent of behaviorism and author of Walden Two.

Answer: **Burrhus Frederic Skinner**

Bonus 19: Math (Algebra)

Name these terms related to parabolas.

A: This three-word term refers to a line that goes through the vertex and is vertical if the parabola is a function.

B: This line is located the same distance from the vertex as the focus, but it is outside the parabola.

C: This two-word term refers to the shortest segment that goes through the focus and hits the parabola at two points.

D: This value varies for other conic sections, but it always equals one for parabolas.

Answers: A: **Axis of Symmetry** B: **Directrix** C: **Latus Rectum** D: **Eccentricity**

Tossup 20: Literature (Literature)

The main character is actually telling his story from a psych ward in California, which is also where his brother D.B. lives. The book's title comes from the protagonist's misunderstanding of a Robert Burns poem, in which he envisions himself protecting children from falling off a cliff. After the protagonist leaves Pencey Prep he has a strange encounter with Mr. Antolini and later meets up with his sister Phoebe. Name this novel about Holden Caulfield, written by J.D. Salinger.

Answer: **The Catcher in the Rye**

Bonus 20: Science (Astronomy)

Identify the planet or dwarf planet in our solar system, given a number of its moons.

A: Ganymede, Callisto, Europa, and Io.

B: Phobos and Deimos.

C: Charon.

D: Dysnomia.

Answers: A: **Jupiter** B: **Mars** C: **Pluto** D: **Eris**

TIEBREAKERS/REPLACEMENTS:**Tossup 21: Science (Physics)**

It can be found by taking the sum of each particle's distance multiplied by its mass, divided by the total mass of all the particles. If the density is uniform, then it is located at the centroid, but it can be located anywhere, even outside the object, if density is not uniform. In physics, objects behave as if all their mass was located at this point. Name this point that can be thought of as the average location of all of an object's mass.

Answer: **Center of mass**

Bonus 21: Social Studies (Geography)

Name the country where each of these mountains can be found.

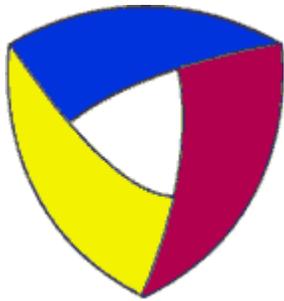
A: Mount Fuji

B: Mount Etna

C: Mount Shasta

D: Mount Kilimanjaro

Answers: A: **Japan** B: **Italy** C: **United States** D: **Tanzania**



Ægis Questions

Davey and Goliath Throwdown, 2007

Round 6

Tossup 1: Science (Chemistry)

Element number 101 is named after him, as is a crater on the moon. He is mainly known for his 1869 work on classifying elements, which brought results similar to those of Lothar Meyer and John Newlands. Unlike those two, however, he accurately predicted the properties of several elements that were still undiscovered at the time, which has brought him lasting fame. Name this Russian chemist credited with the creation of the periodic table.

Answer: **Dmitri Mendeleev**

Bonus 1: Social Studies (Other)

Given a South American country, identify its currency.

A: Brazil

B: Argentina

C: Venezuela

D: Ecuador

Answers: A: **Real** B: **Peso** C: **Venezuelan Bolivar** D: **U.S. Dollar** (*accept American Dollar*)

Tossup 2: Literature (Literature)

In the closing action of this book, Andrei Bolkonski dies after being reunited with his love, Natasha Rostova. Natasha marries her love, Pierre Bezukhov, while Nikolai Rostov marries Maria Bolkonskaya. It is probably safe to assume that Napoleon doesn't marry anyone after his failed invasion of Russia. Name this work by Leo Tolstoy.

Answer: **War and Peace**

Bonus 2: Math (General)

Identify the following French mathematicians.

A: This man is most famous for his work Celestial Mechanics, which took Newtonian physics and related it to calculus.

B: This man's namesake conjecture might have been solved in 2002 by Gregori Perelman.

C: This man is most famous for deriving all philosophy from a single statement, "Cogito ergo sum," and for being the first to form a graph to geometrically display a function.

D: This monk lends his name to numbers that follow the form " 2 to the n power, minus one" and prime numbers that fit that definition.

Answers: A: **Pierre-Simon Laplace** (*la-plass*) B: **Henri Poincare** C: **Rene Descartes** (*day-cart*) D: **Marin Mersenne**

Tossup 3: Social Studies (U.S. History)

Early in his Presidency, this man signed the Family and Medical Leave Act, the Motor-Voter Bill, and the Brady Bill, and he appointed the second woman to the United States Supreme Court. Events that occurred during his first term include a bomb exploding beneath the World Trade Center, a mass suicide by Branch Davidians, the OJ Simpson Trial, and the cancellation of the World Series. Name this 42nd President of the United States whose Vice President was Al Gore.

Answer: **William Jefferson "Bill" Clinton**

Bonus 3: Fine Arts (Visual Art)

Given a sculpture, name the sculptor.

A: Bronco Buster

B: Pieta

C: Discobolus; also known as the Discus Thrower

D: The Thinker

Answers: A: **Frederic Remington** B: **Michelangelo di Lodovico Buonarroti Simoni** C: **Myron** D: **Auguste Rodin**

Tossup 4: Math (General)

Wanda is driving to Chicago and wants to know at what time she can expect to arrive. At 2:00, she is 80 miles away. At 3:00, she is 50 miles away. If she continues at the same pace, when will she reach Chicago?

Answer: **4:40**

Bonus 4: Social Studies (World History)

Identify the following regarding the Greco-Persian Wars.

A: After this battle, Athens needed to be alerted of the victory, so Pheidippides (*FEE-id-ip-id-ees*) was sent to inform them. He reached Athens, uttered his message, and dropped dead.

B: At this mountain pass, 300 Spartans, led by Leonidas, famously delayed a Persian army of much greater size.

C: This naval battle saw a Greek navy defeat a Persian force of 3 to 4 times their size, and was the turning point for the entire campaign.

D: Persia's attempts to solidify their western border ended when this Macedonian conquered the Persian Empire.

Answers: A: **Marathon** B: **Thermopylae** C: **Salamis** D: **Alexander the Great**

Tossup 5: Fine Arts (Music)

In his youth this man was tutored by Rimsky-Korsakov, and he once wrote a work entitled Poetics of Music. The three periods he composed in were known as the serial, neo-classical, and Russian periods. Name this composer of Petrushka and Rite of Spring.

Answer: **Igor Fyodorovich Stravinsky**

Bonus 5: Special Category (Black and White)

Identify the following musical questions pertaining to the category.

A: This local band had a recent hit with "Hate (I Really Don't Like You)".

B: This band is known for its single "Once Bitten, Twice Shy" and has received recent attention due to The Station nightclub fire in Rhode Island in 2003.

C: This song off of Jefferson Airplane's 'Surrealistic Pillow' is teeming with imagery from Lewis Carroll's works.

D: This 1967 song by The Moody Blues, features a spoken word poem in the middle of the album version, which is significantly longer than the single.

Answers: A: **Plain White T's** B: **Great White** C: **White Rabbit** D: **Nights in White Satin**

Tossup 6: Social Studies (Current Events)

Currently this position is held by a man who is the eldest son and fifth child of his father. He is the 125th person to hold the title. This position is a source of controversy today, because legislation that would make it legal for women to ascend to claim the title is being contemplated by the Diet (*dee-yet*). On September 6, 2006, after Princess Kiko gave birth, the resulting newborn became third in line to ascend to its Chrysanthemum Throne. Identify this title to which the newborn's ascension is behind Crown Prince Naruhito and Prince Akishino, the newborn's father.

Answer: **Emperor of Japan** (*prompt on Emperor*) or **Tenno Heika**

Bonus 6: Math (Geometry)

Find the degree measure of an interior angle of each of the following regular polygons.

A: Pentagon

B: 18-gon

C: 40-gon

D: 90-gon

Answers: A: **108 degrees** B: **160 degrees** C: **171 degrees** D: **176 degrees**

Tossup 7: Special Category (Black and White)

A character in the 1986 DC Comics series Watchmen took his name from this method, due to the clearly defined lines of morality symbolized by black and white. Named for a Swiss psychiatrist, it consists of only ten cards. Sometimes used to differentiate psychotic from nonpsychotic thinking and in diagnosing underlying thought disorders, identify this method of psychological evaluation that has patients describing what they see on those ten cards, each of which features a different blot of ink.

Answer: **Rorschach inkblot test** (*prompt on "inkblot test"*)

Bonus 7: Literature (Literature)

Given a work and the year, name the winner of the Nobel Prize in Literature.

A: 1964; Nausea

B: 1976; The Adventures of Augie March

C: 1982; Love in the Time of Cholera

D: 1999; The Tin Drum

Answers: A: **Jean-Paul Sartre** B: **Saul Bellow** C: **Gabriel Garcia Marquez** D: **Gunter Grass**

Tossup 8: Math (Algebra) -- Computational (30 Seconds)

Include units. Jack is driving thirty-six miles in one hour. At what average speed should he drive the last eighteen miles if he drives the first eighteen miles at an average speed of twenty-seven miles per hour?

Answer: **54 miles per hour**

Bonus 8: Science (Biology)

Identify these terms related to the endomembrane system in cells.

A: This membrane comes in the rough and smooth varieties, and helps synthesize proteins and other biomolecules.

B: Named after an Italian scientist, this organelle helps process macromolecules to completion.

C: This porous membrane surrounds the cell nucleus, allowing only certain objects to enter or exit.

D: The membranes in the cell are made of a bilayer of this type of lipid with a large ionic head.

Answers: A: **Endoplasmic reticulum** (*accept ER*) B: **Golgi apparatus/body/complex** C: **Nuclear envelope** D: **Phospholipid**

Tossup 9: Literature (Mythology)

When he was young, he killed Clysonymus, his best friend, while in a heated argument. To avoid revenge, he fled to Phthia, where he was taken in. He, along with the Peleus' son, was sent to study under Chiron, wisest of the centaurs. Years later, he led the Myrmidons (*MURM-id-ons*) into battle before being slain as a result of mistaken identity. What very good friend of Achilles was killed by Hector?

Answer: **Patroclus**

Bonus 9: Literature (Literature)

Answer the following questions about American literary history.

A: The style of literature espoused by authors such as Emerson and Thoreau, under whose principles the Utopian community of Brook Farm was established.

B: America's first female poet, she wrote during the Puritan Age.

C: This poem by Longfellow is considered by some to be the American national epic, telling of the Native Americans prior to the Europeans' arrival.

D: This author's novel *Wieland* (*WY-land*) is considered to be the first American novel.

Answers: A: **Transcendentalism** (*accept Transcendentalist(s)*) B: **Anne Bradstreet** C: **The Song of Hiawatha** D: **Charles Brockden Brown**

Tossup 10: Science (Astronomy)

It has four primary arms, named Scutum, Cygnus, Perseus, and Sagittarius. It is about thirteen and a half billion years old, and mostly consists of dark matter. It is identified as a "loosely wound barred spiral," unlike its un-barred spiral neighbor, Andromeda. Name this galaxy whose name comes from its appearance from Earth as an indistinct white band.

Answer: **Milky Way**

Bonus 10: Math (Algebra)

Find the slope of each of the following lines.

A: $3y$ plus $3x$ equals zero.

B: $3y$ equals $4x$ minus y minus 2.

C: The line perpendicular to the line $2x$ plus $5y$ minus 2.

D: $2y$ equals 5.

Answers: A: **-1** B: **1** C: **5/2 or 2.5 or 2 and 1/2** D: **Undefined or infinite**

HALFTIME

Tossup 11: Literature (Literature)

This author's writing career began with his series of letters for the New York Morning Chronicle under the pen name Jonathan Oldstyle. After writing a few short stories and essays he became a lawyer, but abandoned his law practice to write his first book, Diedrich Knickerbocker's History of New York. Then, ten years later, he wrote The Sketch Book of Geoffery Crayon, which included his two most famous tales. Name this American writer who wrote Rip Van Winkle, and The Legend of Sleepy Hollow.

Answer: **Washington Irving**

Bonus 11: Special Category (East and West)

Given a description, identify the college or university.

A: This school, known as the Wildcats, is the only one in the Big Ten that is not a public university.

B: This college basketball team was the first to win an NCAA championship with a starting five composed entirely of African Americans. It was featured in the recent movie Glory Road.

C: This school, known as the Panthers, has produced Denver Broncos head coach Mike Shanahan and Dallas Cowboys quarterback Tony Romo.

D: This college in Los Angeles that was meant to be a "Princeton of the West" by its founders. Barack Obama and Jim Mora attended there.

Answers: A: **Northwestern University** B: **Texas Western University** C: **Eastern Illinois University** D: **Occidental College**

Tossup 12: Math (Geometry) -- Computational (30 Seconds)

What is the length of the hypotenuse of a triangle with side length of the square root of three over two and other side length of one-half? The Pythagorean Theorem will work here, but there is a shortcut using trigonometry.

Answer: **1**

Bonus 12: Science (Earth Science)

Identify these kinds of clouds.

A: The most common type of cloud, it is often compared to cotton balls. This type of cloud's name means "heap" in Latin.

B: From the Latin for "wisp of hair," these high clouds are thin and wispy.

C: From the Latin for "spread out," these low clouds are flat and look uninteresting, because they're basically fog above the ground.

D: These clouds often indicate thunderstorms to come, and have a well-known tall anvil shape.

Answers: A: **Cumulus** B: **Cirrus** C: **Stratus** D: **Cumulonimbus**

Tossup 13: Special Category (East and West)

In this work, Cathy changes her name to Kate while working in a brothel. When Cal tries to give Adam money, he turns it down in favor of Aron's gift. Julie Harris and Raymond Massey star with James Dean in a movie of this name in 1955, three years after the appearance of the novel. Name this 1952 novel that mimics a famous Bible story of Genesis, was the June 2003 nominee of Oprah's Book Club, and is considered the masterpiece of John Steinbeck.

Answer: **East of Eden**

Bonus 13: Fine Arts (Music)

Identify the following facts about La Boheme.

A: Who composed it?

B: What modern Broadway musical was based on La Boheme?

C: This main character of La Boheme is a poet.

D: This female character, a seamstress, has a relationship with the answer to Part C.

Answers: A: **Giacomo Puccini** B: **Rent** C: **Rodolfo** D: **Mimi**

Tossup 14: Science (Biology)

This system secretes its products directly into the bloodstream or interstitial fluid. Diseases of this system are common, such as diabetes mellitus and goiters. The chemicals that the organs within it secrete are a sort of "instant messenger" between the cells of different organs. Identify this system of organs that includes the Islets of Langerhans in the pancreas, as well as the pineal, adrenal, pituitary, thyroid, and adrenal glands.

Answer: **Endocrine system**

Bonus 14: Social Studies (Geography)

Name these cities, each with less than ten residents, given a brief description.

A: This Indiana town of one resident shares its name with the one originally given to New York by Dutch settlers.

B: The first state capital of Illinois, it was mostly destroyed by flooding in 1881 and at last count had nine residents.

C: This five-resident Nunavut town is the northernmost permanently inhabited place in the world.

D: This locale, often mistakenly cited as the place where the railroads met in Utah, has zero permanent residents recorded.

Answers: A: **New Amsterdam** B: **Kaskaskia** C: **Alert** D: **Promontory Point**

Tossup 15: Fine Arts (Visual Art)

A well known parody of it, LHOOQ, was painted by Marcel Duchamp, who simply added a mustache and a goatee. This portrait uses the artistic technique sfumato, where the artist blends the colors so well that there is no noticeable transition. This picture of the wife of wealthy Florentine businessman Francesco del Giocondo shows rivers and valleys behind the subject. Name this most famous work of Leonardo da Vinci.

Answer: **Mona Lisa** (accept *La Gioconda*)

Bonus 15: Science (Chemistry)

Give the charges of each of the following ions.

A: Ferric

B: Oxide

C: Ammonium

D: Cyanide

Answers: A: **+3** B: **-2** C: **+1** D: **-1**

Tossup 16: Social Studies (U.S. History)

His name dates back to the War of 1812, and his popularity and prevalence surpassed that of Brother Jonathan around 1815. The first image appeared in 1852, and Thomas Nast's cartoons increased his exposure after the Civil War. Name this American icon, whose most famous image is James Montgomery Flagg's version, appearing on World War I recruitment posters.

Answer: **Uncle Sam**

Bonus 16: Math (Geometry)

Convert the following angle measures from degrees to radians. Do not forget to include pi in your answers.

A: 45 degrees.

B: The vertex angle of an isosceles triangle with base angles of 20 degrees.

C: The arc length of a semicircle.

D: The sum of the internal angle measures of a hexagon.

Answers: A: Pi over 4 radians B: 7 pi over 9 radians C: Pi radians D: 4 pi radians

Tossup 17: Science (Physics)

They consist of a gain medium to which energy is added, emitting photons which are reflected on mirrors several times before exiting the device. Unlike other devices, it emits coherent, monochromatic light, whose color is determined by the type of gain medium. Name this device invented in 1960 that stimulates radiation emission to amplify light, which often emits a thin beam of red light.

Answer: Laser

Bonus 17: Literature (Mythology)

Given an epithet from the Odyssey, identify the character that it represents.

A: grey-eyed goddess

B: summoner of cloud

C: red-haired king

D: son of Laertes

Answers: A: Athena B: Zeus C: Menelaus D: Odysseus

Tossup 18: Math (Algebra) -- Computational (30 Seconds)

In fully simplified form, what is the distance between the origin and the ordered pair (6, 8)? It may help you to know that this problem closely mimics a problem looking for the hypotenuse of a right triangle.

Answer: 10 units

Bonus 18: Social Studies (U.S. History)

Identify these facts about a certain stock market crash.

A: What is recognized as the worst stock market crash in American history occurred in October of this year.

B: That crash led to an era known as this. It lasted many years, and the Dust Bowl occurred during it.

C: This U.S. president was blamed by much of the population for the crash.

D: One reason for the crash was the overuse of this type of account, where the buyer only pays a portion of the loan, and the broker pays the rest which is covered by collateral.

Answers: A: 1929 B: Great Depression (*prompt on depression*) C: Herbert Hoover D: Margin account (*accept Buying on Margin*)

Tossup 19: Literature (Language Arts)

Icing on the cake. Bite the dust. It's all Greek to me. I smell a rat. These are all examples of a phrase this type of phrase where the given words have a different meaning than their denotations would suggest. Name this language device where the given phrase really has nothing to do with what it is representing.

Answer: Idiom

Bonus 19: Science (Physics)

There are three main types of magnetism.

A: This type of magnetism is exhibited by compounds with unpaired electrons, and results in a weak attraction to magnetic fields.

B: This very weak form of magnetism results in a weak repulsion to magnetic fields.

C: The magnetism that people are most familiar with, however, is this type of permanent magnetism exhibited by certain metals.

D: Permanent magnets stop exhibiting magnetism if their temperature exceeds this temperature as determined for that particular substance.

Answers: A: **Paramagnetism** B: **Diamagnetism** C: **Ferromagnetism** D: **Curie temperature**

Tossup 20: Social Studies (World History)

In 1972, he declared martial law, which allowed him to stay in power until lifting it in 1981. He remained in power until February 25, 1986, when he was overthrown peacefully by the "People Power" EDSA Revolution. Before all this, in 1954, after a whirlwind 11 day romance, he married beauty queen Imelda Romualdez who, after her husband was ousted, was discovered to own upwards of 1,000 pairs of shoes. Identify this predecessor of Corazon Aquino, the 10th president of the Philippines.

Answer: **Ferdinand Emmanuel Edralin Marcos**

Bonus 20: Literature (Literature)

Identify the following about poetry and poems.

A: Shakespeare wrote about 154 of these, most of which come with 14 lines.

B: Making extensive use of words' visual forms, this man wrote such works as "i sing of Olaf glad and big" and "r-p-o-p-h-e-s-s-a-g-r".

C: "Song of Myself" is contained within this volume of poetry by Walt Whitman.

D: If the title creature of this Lewis Carroll poem is a 'Boojum', then one must be particularly careful in handling it. In the poem, the Baker was not careful, and he mysteriously vanished.

Answers: A: **Sonnet** B: **e.e. cummings** C: **Leaves of Grass** D: **The Hunting of the Snark**

TIEBREAKERS/REPLACEMENTS:**Tossup 21: Social Studies (U.S. History)**

In this speech, the speaker says that America has defaulted on their promissory note when the terms of the promise were concerned with African-Americans, and says that they have come to "demand the riches of freedom and the security of justice." The speaker uses lyrics from the song America and from a spiritual to culminate this speech, ending "Free at last, free at last, thank God Almighty, we are free at last!" Name this speech, delivered August 28th, 1963 by Martin Luther King, Jr.

Answer: **I Have A Dream speech** (*accept additional information*)

Bonus 21: Literature (Literature)

Given a short story, name its American author.

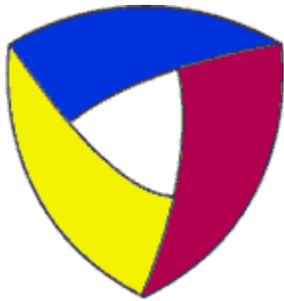
A: Miriam

B: Why I Live at the P.O.

C: Bernice Bobs Her Hair

D: A Clean, Well-Lighted Place

Answers: A: **Truman Capote** B: **Eudora Welty** C: **F. Scott Fitzgerald** D: **Ernest Hemingway**



Ægis Questions

Davey and Goliath Throwdown, 2007

Round 7

Tossup 1: Social Studies (U.S. History)

Captain Lewis Nixon was one of the only men in this division to participate in three combat jumps; most only jumped twice, into France and Holland. While surrounded at Bastogne, General Anthony McAuliffe responded with "Nuts!" when asked by the Germans to surrender. Name this Airborne Division known as the Screaming Eagles that was featured in the Stephen E. Ambrose book Band of Brothers.

Answer: **101st Airborne Division**

Bonus 1: Literature (Mythology) -- Five Parts

Given a discipline, identify the muse that inspired it.

A: Astronomy

B: Epic songs and poetry

C: Lyric songs and poetry

D: Tragic drama

E: Sacred songs and poetry

Answers: A: **Urania** B: **Calliope** C: **Euterpe** D: **Melpomene** E: **Polyhymnia**

Tossup 2: Math (Geometry) -- Computational (30 Seconds)

Express your answer in terms of pi, including proper units. Find the volume of a cone with height of 30 centimeters and radius one-sixth as large as the height.

Answer: **250 pi cubic centimeters**

Bonus 2: Science (Chemistry)

How many oxygen atoms are in one molecule of each of the following acids?

A: Nitric acid

B: Nitrous acid

C: Phosphoric acid

D: Ethanoic (*eth-uh-NOH-ick*) acid

Answers: A: **3** B: **2** C: **4** D: **2**

Tossup 3: Literature (Literature)

His mother is half-English and father half-French. Recommended by his fiancée's family to a Belgian trading firm, he is by far their most valuable employee. Originally espoused to the idea of the "white man's burden," he soon becomes corrupted by his surroundings, turning himself into a brutal demigod, surrounding his house with a fence of severed heads. Though Marlow finally comes to bring him back to Europe in a steamship, he succumbs to jungle fever, with the last words, "The horror! The horror!" Name this ivory trader in the Congo, a main character in Joseph Conrad's novel, Heart of Darkness.

Answer: **Kurtz**

Bonus 3: Social Studies (World History)

Given a major event in world history, name the year in which it took place.

A: The murder of Caesar on the Ides of March.

B: Beginning of the Black Death epidemic in Europe.

C: Fall of Constantinople to the Ottoman Turks, considered the end of the Middle Ages and beginning of the Renaissance.

D: "Annus Mirabilis" or "Year of Wonders," in which the Great Fire of London and many of Isaac Newton's most famous discoveries occurred.

Answers: A: **44 BCE** (*accept 44 BC*) B: **1348** C: **1453** D: **1666**

Tossup 4: Science (Chemistry)

In ancient times it was used as mascara, and its alchemical symbol is an upside-down version of the symbol for Venus. Its English name comes originally from the Greek for "cosmetic powder," which was translated into Latin, explaining its unusual chemical symbol. Used primarily in lead storage batteries, name this metalloid with four allotropes, including yellow, black, and a blue-white metal, that has atomic number 51 and symbol Sb.

Answer: **Antimony**

Bonus 4: Literature (Literature)

Given the name of a Beatrix Potter character, state the animal he or she was in the story.

A: Mrs. Tiggy-Winkle

B: Flopsy

C: Mr. Todd

D: Samuel Whiskers

Answers: A: **Hedge-hog** B: **Rabbit** (or bunny) C: **Fox** D: **Rat**

Tossup 5: Social Studies (Geography)

Its flag has a green cedar tree in the center of it. Prior to its civil war in 1975, its capital was such a popular tourist destination that it was called "The Paris of the Middle East". This civil war ended in 1990, and the country experienced relative prosperity following its resolution. That is, until 2005 when it began a new set of conflicts, both internal and external. The first revolution involved the assassination of Prime Minister Rafik Hariri, and the withdrawal of Syrian troops. The second conflict went one month and two days until a cease-fire was engineered by the UN between this country and Israel.

Answer: **Lebanon**

Bonus 5: Math (Algebra)

Given the piecewise function f of x equals $2x^2 + 1$ when x is less than zero, and f of x equals $3x + 1$ when x is greater than or equal to zero, answer the following questions.

A: What is the value of the function at x equals zero?

B: What is the value of the function at x equals negative 2?

C: What is the value of the function at x equals positive 2?

D: What is the slope of the function at x equals positive 2?

Answers: A: **1** B: **9** C: **7** D: **3**

Tossup 6: Fine Arts (Music)

Its overture was first written for an opera titled Aureliano in Palmira, and then moved to the opera Elizabeth, Queen of England, before it was finally published as the overture to this opera. Though the first performance in 1816 was a failure, it has been a success ever since. Name this opera based on a French play by Beaumarchais about Count Almaviva, Rosina and the titular servant Figaro, written by Gioacchino Rossini.

Answer: **The Barber of Seville** (accept *Il barbiere di Siviglia*)

Bonus 6: Science (Chemistry)

Electrons fill up orbitals in specific patterns. Name these rules that govern how orbitals are filled.

A: From the German for "building up," this principle states that orbitals are filled in order of potential energy.

B: This rule states that only two electrons can be in any one orbital at once.

C: When orbitals have equal energy, this rule states that only one electron goes into each orbital, until each has one electron.

D: Electron orbitals are given one-letter names within each principal quantum number. From lowest to highest potential, name the four orbitals with lowest potential. You must be completely correct to receive credit.

Answers: A: **Aufbau principle** B: **Pauli exclusion principle** C: **Hund's rule** D: **s p d f** (*must be exactly correct*)

Tossup 7: Science (Biology)

Created out of four globular proteins, each of which contains a porphyrin ring. There are many variants of this molecule, some of which don't work, like the deformed copies caused by sickle cell anemia. The most common version in humans contains over nine thousand atoms, including 2,952 carbon atoms and 4 iron atoms. Name this protein in red blood cells that carries oxygen atoms throughout the body.

Answer: **Hemoglobin**

Bonus 7: Social Studies (U.S. History)

Given a vice president, name the U.S. president under whom he served.

A: Elbridge Gerry

B: Spiro Agnew

C: Adlai E. Stevenson

D: Hubert Humphrey

Answers: A: **James Madison** B: **Richard Milhous Nixon** C: **Grover Cleveland** D: **Lyndon Baines Johnson** (*accept LBJ*)

Tossup 8: Special Category (East and West)

It was built sometime between 1045 and 1050 by King Edward the Confessor, who selected it for his burial site, and had it consecrated immediately before his burial. It is now officially known as The Collegiate Church of St Peter, but is still better known by name of the city in which it is located.

Geoffrey Chaucer was buried here, along with many other writers, in a place that became known as Poets' Corner. Identify this building, which is on the same scale as a cathedral, but is not one, and which is the traditional place of coronation for English monarchs.

Answer: **Westminster Abbey**

Bonus 8: Fine Arts (Visual Art)

Answer these questions about held objects in paintings:

A: What is the man in Grant Wood's American Gothic holding?

B: What does Judas hold in Leonardo da Vinci's Last Supper?

C: What is the only commoner in Georges Seurat's Sunday Afternoon on the Island of La Grand Jatte holding?

D: What is held by the seated woman on the left side of Pierre Renoir's Luncheon of the Boating Party?

Answers: A: **Pitchfork** B: **Bag of Silver** (*accept clear knowledge equivalents*) C: **Pipe** D: **Dog**

Tossup 9: Math (General)

(Long words broken up into syllables.) It is equivalent to one one-hundred-trillionth of one sept-en-trig-in-till-i-on. It was named by Milton Sirotta, a nine-year-old nephew of a mathematician, and you'll never see it represented as it was earlier, because we use exponents to express this number simply as ten to the one-hundredth power.

Answer: **Googol** *(prompt on ten to the one-hundredth power before it is mentioned)*

Bonus 9: Science (Biology)

Identify the following regarding the small intestine.

A: This is the first and shortest part of the small intestine, it begins at the duodenal bulb and ends at the ligament of Treitz.

B: This is the second section of the small intestine, it differs from the first part due to lack of Brunner's glands.

C: This third part of the small intestine is the longest and is the only section that has abundant Peyer's patches.

D: Food is allowed into the small intestine and is then pushed through it by a process of muscular-wavelike contractions called this.

Answers: A: **Duodenum** B: **Jejunum** C: **Ileum** D: **Peristalsis**

Tossup 10: Literature (Literature)

Upon hearing that it had been written in three weeks, Truman Capote said, "That's not writing at all—-that's typing." It follows Sal Paradise and Dean Moriarty as they trek across the country. The novel has influenced musicians like Bob Dylan and Jim Morrison as well as generations of disaffected teens. Name this Beat Generation classic by Jack Kerouac.

Answer: **On the Road**

Bonus 10: Special Category (East and West)

Identify the following about places that fit the category.

A: East Egg and West Egg play prominent roles in this novel.

B: This Asian nation was formerly known as East Pakistan.

C: This is the major theatre district of London. Picadilly Circus is located here.

D: It is, after the Sakha Republic in Russia, the second largest subnational entity in the world. This state has a capital at Perth.

Answers: A: **The Great Gatsby** B: **Bangladesh** C: **West End** D: **Western Australia**

HALFTIME

Tossup 11: Science (Biology)

It was first seriously proposed in 1972 by Niles Eldredge and Stephen Jay Gould, and attempts to explain the fossil record more accurately than evolution alone. Contrasted with phyletic gradualism, name this scientific theory that states that species remain at stasis most of the time, occasionally undergoing brief but significant bouts of evolution.

Answer: **Punctuated equilibrium theory**

Bonus 11: Math (General)

Identify the following Ancient Greek mathematicians.

A: He preached a philosophy that bears his name, and is most famous for a theorem regarding the sides of a right triangle.

B: His most famous work, Elements, begins with 23 definitions and 10 axioms. These are the basis for the rest of the geometric thought in the book.

C: He developed a principle that stated that the a displaced solid would displace an equal volume of water.

D: He is the first mathematician to have calculated the circumference of the Earth and also developed a sieve to "catch" prime numbers.

Answers: A: **Pythagoras** B: **Euclid** C: **Archimedes** D: **Eratosthenes**

Tossup 12: Literature (Literature)

Taking his name from a real-life ornithologist, his original author wrote thirteen novels about him, but after his death, there were numerous attempts to continue the series, including the book Colonel Sun. The sixth man to portray him in movies makes his 2006 debut in the role just after getting his double-O status, in the first official adaptation of the first novel, Casino Royale. Name this Ian Fleming character portrayed in movies by Daniel Craig, Pierce Brosnan, and Sean Connery, among others.

Answer: **James Bond**

Bonus 12: Fine Arts (Music)

Name these musical forms.

A: Coming from the French for "study," this is a short work designed to improve proficiency at a solo instrument.

B: This form originates from the Baroque "grosso" variety, and is typically written for a solo instrument and orchestra.

C: This type of structure has the form "A B A C A D A," et cetera, alternating between a refrain and new episodes. A famous one was written by Mozart in the Turkish style.

D: Possibly the best-known musical form, this is a musical piece for orchestra typically four movements long. 106 famous ones were written by Haydn, and 41 by Mozart.

Answers: A: **Étude** B: **Concerto** C: **Rondo** D: **Symphony**

Tossup 13: Math (Algebra)

To find these without calculators, a table of values for all prime numbers is all that is necessary, but values for all positive integers are included for ease. A tool called Napier's bones or rods was also developed to assist in the computation of these. Name this mathematical operation, the inverse of exponentiation.

Answer: **Logarithm**

Bonus 13: Science (Astronomy)

Name these astronomical units of measurement.

A: Equal to about nine quadrillion meters, this most common measurement is equal to the distance that light travels in a bit over 365 days.

B: This unit is equal to 93 million miles, the distance between the earth and the sun.

C: This unit is named for the fact that it is the distance required to cause a parallax of one arc second.

D: This is the coordinate of latitude in the celestial coordinate system, measured in degrees.

Answers: A: **Light year** B: **Astronomical Unit** (*accept AU*) C: **Parsec** D: **Declination**

Tossup 14: Special Category (Black and White)

The area covered by this is approximately the same as that of the states of Connecticut and Rhode Island put together. Gypsum crystals that form the distinctive dunes that give this area its name.

Identify this military site with an enclosed national park that is sometimes closed for hours at a time due to safety concerns over explosives such as the one used on July 16, 1945 at the "Trinity" test, when the first test of a nuclear weapon occurred here.

Answer: **White Sands Missile Range** or **WSMR**

Bonus 14: Literature (Literature)

Given a character from American drama, identify the play in which he or she appears.

A: Willie Loman

B: Amanda Wingfield

C: Stanley Kowalski

D: E. K. Hornbeck

Answers: A: **Death of a Salesman** B: **The Glass Menagerie** C: **A Streetcar Named Desire** D: **Inherit the Wind**

Tossup 15: Social Studies (U.S. History)

Anarchist August Spies (*speez*) was hanged because of his alleged participation in this event that led to the formation of the AFL after it was blamed on the Knights of Labor. It began a day after an incident at the McCormick Harvesting Machine Company when someone threw a bomb that killed multiple people, including some policemen. Name this May 4th, 1886 event that occurred in Chicago.

Answer: **Haymarket Riots** (*prompt on either half of answer*)

Bonus 15: Math (Algebra)

Solve the following problems regarding direct and inverse variation.

A: X varies directly as y. When x equals 25, y equals 10. What does k equal?

B: X varies inversely as y. When x equals 16, y equals 8. What does y equal when x equals 4?

C: X varies directly as the square root of y. When x equals 8, y equals 4. What does y equal when x equals 20?

D: X varies inversely as the cube of y. When x equals 5, y equals 3. What does x equal when y is 6?

Answers: A: **2.5** or **Five-halves** or **2 and one-half** or **5 over 2** B: **32** C: **25** D: **5/8** or **0.625**

Tossup 16: Fine Arts (Visual Art)

It is currently in the collection of the Whitney Museum of American Art in New York City until December 31st, at which point it will be returned to its traditional location. Phillies Cigars are advertised as costing five cents in this painting, which attempts to capture the loneliness and despair of city life by depicting a diner with only three patrons and a single attendant. Identify this work which usually hangs in the Art Institute of Chicago by Edward Hopper.

Answer: **Nighthawks**

Bonus 16: Social Studies (U.S. History)

Given a provision, name the amendment from the Bill of Rights.

A: An impartial jury

B: Freedom of religion

C: Powers not included in the Constitution fall to the States

D: Forbids excessive fines and bails, as well as cruel and unusual punishment

Answers: A: **Sixth** B: **First** C: **Tenth** D: **Eighth**

Tossup 17: Math (Algebra) -- Computational (30 Seconds)

Solve for x, giving your answer as a simplified fraction: Two-thirds plus x over five equals three-fourths.

Answer: **5/12**

Bonus 17: Special Category (Black and White)

Identify the following items:

A: In some countries, it cannot legally be called chocolate because it does not contain enough cocoa solids or cocoa mass.

B: He is the best-known of the Maiar of Valinor, and after confronting Durin's Bane he returned, much more powerful, under this moniker.

C: This obelisk at the west end of the National Mall is made of marble, granite, and sandstone.

D: A white ash tree that is thought to connect all nine worlds of Norse cosmology.

Answers: A: **White Chocolate** B: **Gandalf the White** (*prompt on Gandalf*) C: **Washington Monument** D: **Yggdrasil**

Tossup 18: Social Studies (World History)

Its origins are currently disputed, as scholars now attribute its commission to Bishop Odo, the main character's half-brother. It was originally thought to have been commissioned and created by Queen Matilda, the wife of William the Conqueror. It is truncated, and scholars believe that possibly even up to 7 yards of it are missing. Identify this work that is one of the earliest examples of narrative art, and tells the story of the Battle of Hastings.

Answer: **Bayeux Tapestry**

Bonus 18: Literature (Literature)

Most everyone has heard of The Hitchhiker's Guide to the Galaxy by Douglas Adams. In any order, name the other four books in the series.

Answers: (*in any order*) A: **The Restaurant at the End of the Universe** B: **Life, the Universe, and Everything** C: **So Long and Thanks for All the Fish** D: **Mostly Harmless**

Tossup 19: Science (Physics)

It cannot be directly quantified, but rather refers to a principle which has not been greatly modified since it was first proposed by Isaac Newton. In brief, this principle states that objects maintain their momentum unless it is changed externally. Name this principle in Newton's First Law of Motion that states that objects in motion remain in motion unless acted on by an external force, a principle which Bill Nye says "is a property of matter."

Answer: **Inertia**

Bonus 19: Math (Geometry)

Identify the following about important points of a triangle.

A: This is the point of intersection of all three altitudes of the triangle.

B: This is the point of intersection of all three medians of the triangle, and is the center of mass of the triangle.

C: This is the center of a circle that all three vertices of the triangle lie on.

D: A line named for what mathematician passes through all three of the points previously mentioned?

Answers: A: **Orthocenter** B: **Centroid** C: **Circumcenter** D: **Leonhard Euler** (*OY-ler*)

Tossup 20: Literature (Language Arts)

These will be used sixty-eight times in this question alone. In recent times its slang definition has come to include "a statement of agreement", and when it is paired with "up" it can be used as a greeting. Among other things, it can be a pronoun, an adjective, a verb, or a noun. Identify this most basic unit of language that makes up sentences and is composed of letters.

Answer: **Words**

Bonus 20: Social Studies (Geography)

Given a description, name the river that flows through Montana.

A: The longest undammed river in the contiguous 48 states, it shares its name with the nation's oldest national park.

B: This river lent its name to the battle where Custer made his last stand.

C: This river, the second longest in the United States, starts in Montana.

D: This river is named for a Swiss United States Secretary of the Treasury who served under Thomas Jefferson.

Answers: A: **Yellowstone River** B: **Little Big Horn River** C: **Missouri River** D: **Gallatin River** (*Accept East Gallatin River*)

TIEBREAKERS/REPLACEMENTS:**Tossup 21: Literature (Literature)**

In *A Scanner Darkly*, Charles Freck plans to be found with this novel after he commits suicide. It tells the story of Howard Roark, an idealistic young architect who places his own artistic vision above success and fame. Name this novel by Ayn Rand.

Answer: **The Fountainhead**

Bonus 21: Math (Algebra)

Put the following in simple radical form:

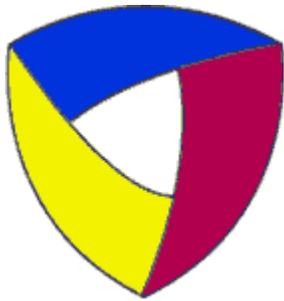
A: The square root of 32.

B: The cube root of 32.

C: The fourth root of 32.

D: The fifth root of 32.

Answers: A: **$4\sqrt{2}$** B: **2 times the cubed root of 4** C: **2 times the fourth root of 2** D: **2**



Ægis Questions

Davey and Goliath Throwdown, 2007

Round 8

Tossup 1: Social Studies (Other)

Stanley Milgram's famous 1967 test of this theory was to give postcards to test subjects, instructing them to hand the postcards to whichever of their friends was most likely to know the final recipient, whose name, occupation, and location was specified. Most postcards only took about four repetitions of this process to get to their destination, and almost none took more than six. Name this theory first proposed in 1929, quantifying the idea that it is indeed a small world after all.

Answer: **Six degrees of separation** (*accept close equivalents*)

Bonus 1: Literature (Literature)

Given the quote, name the literary work. Each was written by a member of the Lost Generation.

A: "They're a rotten crowd. You're worth the whole damn bunch put together."

B: "It is good that we do not have to try to kill the sun or the moon or the stars. It is enough to live on the sea and kill our true brothers."

C: "Oh, Jake...we could have had such a damned good time together."

D: "Yes I said Yes I will Yes."

Answers: A: **The Great Gatsby** B: **The Old Man and the Sea** C: **The Sun Also Rises** D: **Ulysses**

Tossup 2: Math (Algebra) -- Computational (30 Seconds)

Find the slope of the line $3x$ minus $2y$ plus 7 equals zero. One possible way to find the slope is by converting the line into slope intercept form.

Answer: **two-thirds** or **2/3**

Bonus 2: Science (Physics)

Inverse square laws are laws in physics that relate a quantity to one over the square of another number. Answer these questions about inverse square laws.

A: Perhaps the most famous inverse square law is the universal law of this, which states that its force equals $G m_1 m_2$ over d squared.

B: Also famous is this law, that states that $k q_1 q_2$ over d squared is equal to the force between two electric charges.

C: In any of these laws, doubling distance multiplies the force by this number.

D: If you had two electric charges and you tripled the distance between them, by what factor would one of the charges have to be multiplied so that the force remained the same?

Answers: A: **Gravity** (*accept other forms*) B: **Coulomb's law** C: **1/4** (*not 4*) D: **9** (*not 1/9*)

Tossup 3: Literature (Literature)

She is "of the old school, rather small if anything; with an old-fashioned claw-footed look about her." She is at least 50 years old, and therefore, was probably built in the 1790s. A gold coin is nailed to one of her three masts as a reward to her men for being on the lookout. The three mates to her captain are Stubb, Flask and Starbuck. Identify this Nantucket based ship, having harpoons manned by Dagoo, Tashtego and Queequeg, and which is owned in partnership among the Quaker captains Bildad, Peleg and Ahab.

Answer: **The Pequod**

Bonus 3: Social Studies (Other)

Given a description, identify these sects of Christianity.

A: It was founded by Henry VIII after the Pope would not grant him an annulment of his marriage to Catherine of Aragon.

B: Originally used by opponents of the man who posted the 95 theses, this sect traces its roots to the Protestant Reformation.

C: This sect was founded by St. Ignatius of Loyola and was fundamental in reconverting lost Catholics.

D: This group was founded by Joseph Smith in 1830, and they are commonly associated with Utah.

Answers: A: **Church of England** (accept *Anglican Church*) B: **Lutheran Church** (prompt on *Protestant*) C: **Society of Jesus** (accept *The Jesuits*) D: **Church of Jesus Christ of Latter-day Saints** (accept *The Mormons*)

Tossup 4: Science (Biology)

The human body has four different receptors for this chemical, which can trigger vasodilation, pain, itching, and hives. Often associated with these and other unpleasant effects, it is released by mast cells. Name this chemical responsible for allergies, whose effects are counteracted by some medications like Benedryl.

Answer: **Histamine**

Bonus 4: Literature (Literature) -- Five Parts

Fill in the blanks to complete the titles of the following plays by Tennessee Williams.

A: Night of the (blank)

B: The Glass (blank)

C: The Rose (blank)

D: A Streetcar Named (blank)

E: Orpheus (blank)

Answers: A: **Iguana** B: **Menagerie** C: **Tattoo** D: **Desire** E: **Descending**

Tossup 5: Social Studies (U.S. History)

It originally excluded farmers and anyone self-employed or working in a business of less than ten employees, and later was expanded to include survivors of recipients as well. Ida May Fuller was the first to benefit from it, having received \$22.54 on January 31, 1940, and continued to receive money until her death in 1975. Name this act that, among other actions, provides monthly benefits to the retired.

Answer: **Social Security Act of 1935** (prompt on *SSA*; accept *Social Security Administration until "act"*)

Bonus 5: Math (General)

Answer the following questions in the Cartesian plane.

A: What is the distance between the points (2,5) and (3, 6)?

B: What is the slope of a line with x intercept at two and y intercept at nine-halves?

C: What is the area bound by the graphs of y equals 2, x equals 2, y equals 7, and x equals 5?

D: What is the area of a circle with center at the origin and a point on the circle at (3,3)?

Answers: A: **$\sqrt{2}$** B: **-2.25** or **-nine-fourths** or **-2 and one-fourth** C: **15 square units** D: **$3\sqrt{2}$ square units**

Tossup 6: Fine Arts (Visual Art)

This man liked to carry around a Browning revolver loaded with blanks so he could fire it at any bourgeois (*BOOJ-wa*) who asked him what his work meant. He was commissioned to make a maquette for a huge fifty foot high sculpture to be built in Chicago, Illinois that was unveiled in 1967. Identify this man who painted *Les Demoiselles d'Avignon*, *The Old Guitarist*, and *Guernica*.

Answer: **Pablo Ruiz Picasso**

Bonus 6: Science (Biology)

Identify these parts of organs which are named after people.

A: This is a sac that encloses the glomerulus in the kidney.

B: Constituting about 1 to 2 percent of the mass of the pancreas, these cells produce insulin.

C: At the front of the larynx is the thyroid cartilage, which creates a visible lump in the neck, name it.

D: These are two very fine tubes leading from the ovaries to the uterus.

Answers: A: **Bowman's capsule** B: **Islets of Langerhans** C: **Adam's apple** D: **Fallopian tubes**

Tossup 7: Science (Chemistry)

Though they are typically concave, there are many examples of convex ones, such as mercury in a glass barometer. This is because the molecules in glass usually attract the liquid molecules, rather than repelling them as they do for mercury. It must be read from the bottom if concave, or the top if convex. Name this curve whose name comes from the Greek for "crescent," the curve that liquids assume when placed in tubes like graduated cylinders.

Answer: **Meniscus**

Bonus 7: Social Studies (World History)

Identify the following about Russian heads of state.

A: This female monarch disbanded the Cossack army after a revolt, won two wars against the Ottomans and annexed Crimea, all in a 34 year reign.

B: He was executed by the Bolsheviks and was the last Emperor of Russia.

C: This man was the first Russian leader to assume the title of Czar.

D: He was leader of the Soviet Union during the 1962 Cuban Missile Crisis.

Answers: A: **Empress Catherine II "the Great"** (*either suffix is sufficient; prompt on Catherine*) B: **Nicholas II Romanov** C: **Ivan IV "the Terrible" Vasilyevich** D: **Nikita Khrushchev**

Tossup 8: Special Category (East and West)

After the opening quatrain, it begins with, "Kamal is out with twenty men to raise the Border side/and he has lifted the Colonel's mare that is the Colonel's pride." It claims that, "till Earth and Sky stand presently at God's great Judgment Seat," the titular entities shall never come together. Name this Rudyard Kipling poem that rephrases the previous line of this tossup as, "never the twain shall meet."

Answer: **The Ballad of East and West**

Bonus 8: Fine Arts (Music)

Identify the composers of the following 20th century compositions.

A: Rhapsody on a Theme by Paganini

B: The Rite of Spring

C: Pierrot Lunaire

D: Rhapsody in Blue

Answers: A: **Sergei Rachmaninoff** B: **Igor Stravinsky** C: **Arnold Schoenberg** D: **George Gershwin**

Tossup 9: Math (Algebra) -- Computational (30 Seconds)

Give both possible values for x in a two-by-two matrix with a top row of x and 4, and with a bottom row of x and x, if the determinant equals five.

Answer: **-1 and 5** (*either order*)

Bonus 9: Science (Astronomy)

Identify these terms from astronomy.

A: This is the proven theory that the sun is at the center of the solar system.

B: This is the closest point of an object's orbit around the earth.

C: This is the farthest point of an object's orbit around the earth.

D: This is the motion of a body in the opposite direction of other objects in its system.

Answers: A: **Heliocentrism** (*accept grammatical variants*) B: **Perigee** C: **Apogee** D: **Retrograde motion**

Tossup 10: Literature (Literature)

The titular character is known simply as Prince Charming to his actress fiancée, who kills herself after her love makes her lose the ability to perform. Her brother, James Vane, vows to kill him, and almost succeeds. The protagonist's closest friend, Lord Henry Wotton, introduces him to sensual depravity, and he eventually kills his artist friend Basil Hallward for painting the titular object. Name this work by Oscar Wilde, in which a man's portrait ages instead of him.

Answer: **The Picture of Dorian Gray**

Bonus 10: Special Category (East and West)

Identify the following about an important eastern occurrence.

A: This 1872 Monet work is often cited as the first impressionist painting.

B: The Animals performed the most famous cover of this American folk song about a brothel in New Orleans.

C: Expatriate main characters Jake Barnes and Brett Ashley are unable to consummate their relationship in this Hemingway work.

D: We call Japan "Japan", while the Japanese call it Nippon, or more casually, Nihon; both of which translate to this.

Answers: A: **Impression, Sunrise** (*also accept Impression, soleil levant*) B: **House of the Rising Sun** C: **The Sun Also Rises** D: **Land of the Rising Sun** (*also accept "the sun's origin" as it is the literal translation*)

HALFTIME

Tossup 11: Literature (Mythology)

This god is known as Nilakantha, or "one with the blue neck", as he drank the poison Halahala Kalakuta. His three wives are seen as personifications of his powers, and he cut off the head of one of his wives and replaced it with a goat. He also cut off the head of his son Ganesha and replaced it with that of an elephant. Name this Indian god who at the end of every cycle of the world performs the dance of death.

Answer: **Shiva** (also accept *Siva*)

Bonus 11: Social Studies (Current Events)

Answer these questions about a Congressional scandal that broke in late September 2006.

A: This Republican Congressman from Florida was found to have engaged in sexually explicit conversations with underage males.

B: Those males all formerly held these positions through which that Congressman knew them.

C: This Speaker of the House had heard about the scandal, but apparently refused to act on it until it was made public.

D: Ironically, that Congressman could be charged under laws that he helped enact, like the July 27, 2006 "Child Protection and Safety Act" named after this son of the host of America's Most Wanted.

Answers: A: **Mark Foley** B: **Congressional page** C: **Dennis Hastert** D: **Adam Walsh** (accept *Adam*)

Tossup 12: Science (Physics)

Through the property of confinement, they are never seen individually, instead typically occurring in small clusters called hadrons. They have color charges, either red, blue, or green, as well as fractional electrical charges, either plus one third or minus two thirds. Name these particles from particle physics named by Murray Gell-Mann using a word from the book "Finnegan's Wake," which can exist in the top, bottom, charm, strange, up, and down varieties.

Answer: **Quark**

Bonus 12: Math (Algebra)

Solve the following quadratic equations for x.

A: $X^2 - x - 12 = 0$

B: $X^2 - 3x + 2 = 0$

C: $3x^2 + 36x + 60 = 0$

D: $2x^2 + x - 15 = 0$

Answers: (Accept answers in any order.) A: **X equals -3 and 4** B: **X equals 1 and 2** C: **X equals -2 and -10** D: **X equals -3 and 2.5**

Tossup 13: Social Studies (U.S. History)

The man who instigated this Supreme Court case was actually only one-eighth black, and appeared white. He bought a first class train ticket, in an attempt to test the law in question by the case. He ended up having to alert the conductor of his heritage before he was asked to move. Identify this case, finally overturned in 1954 by Brown v. Board of Education, that asserted the practice of "separate, but equal" was lawful.

Answer: **Homer A. Plessy v. John H. Ferguson**

Bonus 13: Literature (Literature)

Given a fictional town, name the author who created it.

A: Grover's Corners, New Hampshire

B: Gopher Prairie, Minnesota

C: Winesburg, Ohio

D: Spoon River, Illinois

Answers: A: **Thornton Wilder** B: **Sinclair Lewis** C: **Sherwood Anderson** D: **Edgar Lee Masters**

Tossup 14: Math (Geometry)

They are generally too irregular to describe using Euclidian geometry. They are considered to be infinitely complex, because they are self-similar at all levels of magnification. Name this type of shape, two famous examples of which are the Koch snowflake and Mandelbrot set.

Answer: **Fractal**

Bonus 14: Special Category (Black and White)

Identify these things pertaining to the category, with a twist.

A: There are only two of these high-end toy stores left in the country, one in New York City and another in Las Vegas. The NYC store was featured in the movie Tom Hanks movie Big.

B: The term for Hollywood crime dramas of the 40s and 50s that set their protagonists in a corrupt and unsympathetic world.

C: This "man of 1000 voices" worked for both Warner Bros. and Hanna-Barbara.

D: This Republican politician's last name means 'black ploughman'.

Answers: A: **F.A.O. Schwarz** B: **Film Noir** C: **Melvin "Mel" Blanc** D: **Arnold Schwarzenegger**

Tossup 15: Fine Arts (Music)

He is mainly known for his tone poems, which include An Alpine Symphony, Domestic Symphony, Till Eulenspiegel's Merry Pranks, and A Hero's Life. A 1905 opera based on a work by Oscar Wilde created great controversy, but his later operas have become quite successful, especially Der Rosenkavalier. Name this composer perhaps best known for his tone poem "Also Sprach Zarathustra," which was used in the film score for 2001: A Space Odyssey.

Answer: **Richard Strauss**

Bonus 15: Social Studies (U.S. History)

Given a first year of statehood and its first governor, identify the U.S. state.

A: 1845; James Pinckney Henderson

B: 1776; Patrick Henry

C: 1816; Jonathan Jennings

D: 1818; Shadrach Bond

Answers: A: **Texas** B: **Virginia** C: **Indiana** D: **Illinois**

Tossup 16: Social Studies (World History)

It measures 880 meters south to north and 500 meters east to west, making a total area of over 90 acres. Enlarged in 1949 to the current size, its flatness is broken only by the Monument to the People's Heroes. It takes its name from the structure located on the northern edge of it, which is the main entrance to the Imperial City. Identify this location, which acquired its greatest fame when a single unknown rebel stood his ground in front of several Chinese Type 59 tanks.

Answer: **Tiananmen Square**

Bonus 16: Math (Algebra)

Perform the following operations using matrices. If an operation is impossible to perform, that will be the answer.

A: Add the matrix $\begin{bmatrix} 1 & 2 & 3 \end{bmatrix}$ to the matrix $\begin{bmatrix} 5 & 0 & 1 \end{bmatrix}$.

B: Subtract the matrix with top row $\begin{bmatrix} 2 & 0 & -1 \end{bmatrix}$ and bottom row $\begin{bmatrix} 1 & 4 & 2 \end{bmatrix}$ from the matrix with top row $\begin{bmatrix} 1 & -3 & 4 \end{bmatrix}$, middle row $\begin{bmatrix} 1 & 0 & 5 \end{bmatrix}$, and bottom row $\begin{bmatrix} 9 & 0 & -10 \end{bmatrix}$.

C: Multiply the scalar negative one-half to the matrix $\begin{bmatrix} 2 & 1 & 0 & -9 \end{bmatrix}$.

D: Multiply the matrix with top row $\begin{bmatrix} 2 & 1 \end{bmatrix}$ and bottom row $\begin{bmatrix} 3 & 0 \end{bmatrix}$ to the matrix with top row $\begin{bmatrix} 0 & -1 \end{bmatrix}$ and bottom row $\begin{bmatrix} 2 & 5 \end{bmatrix}$.

Answers: A: **6, 2, 4** B: **Impossible** (accept logical equivalents) C: **-1, -0.5, 0, 4.5** D: **Top row 2, 3, bottom row 0, -3** (accept logical equivalents that describe that matrix)

Tossup 17: Special Category (Black and White)

In the 1930s there was a Paletinian militant group by this name. In the Inheritance Trilogy, it is a network of King Galbatorix's assassins who are responsible for many deaths in Surda and the Varden. In 1911, another group was founded with the goal of uniting all territories with Serbs in them. That group was officially named "Unification or Death", but is better known today by a much catchier name. Identify this group that, in June of 1914, supplied weapons to fifteen people, only one of whom used his successfully, Gavriilo Princip, who assassinated the Austrian Archduke Franz Ferdinand.

Answer: **Black Hand**

Bonus 17: Literature (Language Arts)

Identify these facts about the Romance languages.

A: The languages are all descended from this language.

B: The Romance languages are a part of this family, which also includes Germanic and Greek languages.

C: This is the second most spoken Romance language. It is spoken in Brazil.

D: This is the only Romance language spoken west of Austria.

Answers: A: **Vulgar Latin** (accept *Classical Latin*) B: **Indo-European family** (prompt on either half of answer) C: **Portuguese** D: **Romanian** (accept *Moldovan*)

Tossup 18: Math (General)

In 1799, he published a proof of the fundamental theorem of algebra. An anecdote about this man's childhood says that, in a flash of insight, he was able to add the integers from 1 to 100 by realizing that adding the first and last, second and second-last, and so on, and multiplying by half the number of numbers would give the correct answer. Name this mathematician whose invention of modular arithmetic led to great progress in number theory.

Answer: **Carl Friedrich Gauss**

Bonus 18: Science (Chemistry)

Answer these questions about the definitions of acids and bases.

A: According to this definition named after a Swedish chemist, acids are compounds that donate hydrogen ions in solution.

B: According to the Bronsted-Lowry definition, what must a base accept?

C: According to the more general Lewis definition, what must acids accept?

D: For any of these definitions, acids in solution increase pH, and bases in solution increase this number which is equal to 14 minus the pH (*read as "p h"*).

Answers: A: **Arrhenius** B: **Proton acceptor** C: **Electron-pair** D: **pOH**

Tossup 19: Literature (Language Arts)

This word has 464 separate definitions according to the Oxford English Dictionary, making it the word with the largest number of different definitions. This one word can describe a theory in both mathematics and in music. It is a unit of scoring in tennis, as well as meaning the place where a movie or play is performed. Identify this three-letter word that is most commonly used to describe a grouping of things.

Answer: **Set**

Bonus 19: Fine Arts (Visual Art)

Identify the architects of the following structures.

A: The Rock and Roll Hall of Fame and the glass pyramid at the Louvre.

B: Fallingwater and The Guggenheim Museum in New York.

C: The Gateway Arch in St. Louis.

D: The Vietnam Veterans Memorial in Washington, D.C.

Answers: A: **I.M. Pei** B: **Frank Lloyd Wright** C: **Eero Saarinen** D: **Maya Ying Lin**

Tossup 20: Science (Physics)

He won the 1922 Nobel Prize in Physics for his work, which most notably included the fact that the angular momentum of electrons can only equal certain numbers. This led him to create a model of the atom in which electrons move around a nucleus in circular orbits of various radii. Name this Danish physicist whose incorrect model of the atom was nevertheless a great step forward, because he realized that electron energies are quantized.

Answer: **Niels Bohr**

Bonus 20: Math (Algebra)

Solve the following inequalities for x.

A: $3x + 2 \geq x + 6$

B: $10x + 2 < x$

C: $4x - 2 \leq 3x - 1$

D: $x^2 > 16$

Answers: A: **X is greater than or equal to 2** B: **X is less than 0** C: **X is less than or equal to 1** D: **X is greater than 4**

TIEBREAKERS/REPLACEMENTS:**Tossup 21: Math (Algebra) -- Computational (30 Seconds)**

Express your answer as a simplified fraction. If x equals 5, find the value of x to the 8th power over x to the 11th power. One possible way of completing this is to compute 5 to the 8th power and divide that by 5 to the 11th power, but a faster way involves canceling out like terms to leave a denominator with x to a certain power and a numerator of one.

Answer: **1/125**

Bonus 21: Social Studies (Other)

Name these famous women of the feminist movement and sexual revolution in the 20th century.

A: Birth control activist and founder of the organization that became Planned Parenthood

B: Author of *The Feminine Mystique* and the first president of the National Organization for Women

C: Founder of *Ms.* magazine

D: Author of *Sex and the Single Girl* and longtime editor of *Cosmopolitan*

Answers: A: **Margaret Sanger** B: **Betty Friedan** C: **Gloria Steinem** D: **Helen Gurley Brown**