Tossup 1: Social Studies — U.S. History

While the Northern states had pushed for this bill in Congress for twenty years, it was not passed until 1862, when the South was not able to vote against it. Its policy would last until 1986; the last man to use it received 80 acres of land in Alaska in 1988. Before 1900, it allowed the United States to give away 80 million acres of land to 600,000 men, helping to develop the Western frontier. Name this law which gave 160 acres of land to any man, at least 21 years old, who promised to live on it for five years.	Homestead Act
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Bonus 1: Literature — Literature

Ide	entify the following types of poetry.	
A	Usually meant to be sung or recited in musical form, a famous collection of these was written by Coleridge and Wordsworth.	Ballad
В	A poem of mourning, a famous example of it is Shelley's Adonaïs.	<u>Elegy</u>
С	It usually includes three parts including the strophe, and the antistrophe, and Keats wrote a number of them.	<u>Ode</u>
D	A short poem, often about love, suitable for being set to music. Sometimes schools and churches hold dinners based around the singing of them.	<u>Madrigal</u>

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

Find the volume of a rectangular pyramid with base of area 10 and perpendicular height of 5.	<u>50/3</u> (accept <u>16 2/3</u>)
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Bonus 2: Science — Chemistry

	u attempt to determine the concentration of twenty milliliters of furic acid by titrating it with three-molar sodium hydroxide.	
A	You add twenty milliliters of the three-molar sodium hydroxide to get to the equivalence point, meaning you added this many moles of sodium hydroxide.	<u>0.06</u> moles
В	Since you are reacting a strong acid and strong base, this should be the pH of the mixture at the equivalence point.	7
С	This is the number of moles of sulfuric acid that were neutralized.	<u>0.03</u> moles
D	This is the molarity of the twenty milliliters of sulfuric acid.	<u>1.5</u> molar

Tossup 3: Literature — Literature

One of his characters is an amoral private eye known only by his job description: The Continental Op. That character appeared in a number of his short stories including The Dain Curse and Red Harvest. His life included a stint with the Pinkerton Detective Agency and a thirty-year love affair with Lillian Hellman. Creating hardboiled detective Sam Spade, identify this author of The Maltese Falcon.	Dashiell <u>Hammett</u>
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Bonus 3: Social Studies — World History

An	swer these questions about the Spanish Reconquista.	
Α	To the nearest 100 years, how long did the Reconquista last?	<u>800</u> years
В	This battle, won by the Asturian Pelayo (pe-LIE-yo) against the Moorish forces of Alqama (AL KA-ma) and Munuza (moon-OOZE-ah), started the campaign to reconquer Spain.	Battle of <u>Covadonga</u>
С	This mercenary who captured Valencia is considered a national hero despite the fact that he fought on both sides during the campaign.	El Cid Campeador (accept Rodrigo Díaz de <u>Vivar</u>)
D	This final stronghold of the Muslims was finally conquered in 1492 by the forces of Ferdinand and Isabel.	<u>Granada</u>

Tossup 4: Science — Earth Science

This sedimentary rock can be classified as various substances depending on its volatile content. It begins as peat, but as it is compressed over time, transforms into lignite, then bituminous. 5.3 billion tons of it are consumed every year, and it is responsible for 40% of the world's energy production. Name this substance whose hardest variety is called anthracite, a hard black rock known as the world's most prominent fossil fuel.	<u>Coal</u>
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Bonus 4: Literature — Literature

	entify the following works of Literature by authors whose last names gin with 'C'.	
A	This collection begins with a General Prologue and is followed by the prologues and individual stories by the likes of The Knight, The Miller and The Reeve.	The Canterbury Tales
В	This work sees Edna Pontillier spending a lot of time with Robert Lebrun, leading to her realization that she wants freedom.	The <u>Awakening</u>
С	This work relays the story of the titular girl and her brothers Jimmie and Tommie, who are treated poorly by their parents.	Maggie: A Girl of the Streets
D	This work by Walter Van Tilburg Clark concerns a lynching of three innocent men.	The Ox-Bow Incident

Tossup 5: Social Studies — U.S. History

This man, Nathaniel Hawthorne's brother-in-law, graduated from Brown University as valedictorian. He spent fourteen years as a lawyer before becoming first a member of the House of Representatives and then a Senator. In 1852, he helped the state of Massachusetts reform their education system, making changes that were soon copied in every other state. Name this man who began compulsory education in America, who is known as "the father of American education."	Horace <u>Mann</u>
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Bonus 5: Math — Calculus

Fir	nd the following limits, or state that they do not exist.	
Α	The limit, as x approaches zero, of the natural log of x.	Does not exist
В	The limit, as x approaches two from the right, of one over the quantity x squared minus four, close quantity.	Positive <u>infinity</u> (accept <u>does</u> <u>not exist</u>)
С	The limit, as x approaches infinity, of the quantity one plus two over x, close quantity, all raised to the x power.	e squared
D	The limit, as x approaches $1/2$, of the inverse sine of x , divided by the inverse cosine of x .	<u>1/2</u> (accept 0.5)

Tossup 6: Fine Arts — Visual Art

In the upper right of this work, a dark river flows from under a bridge in the foreground into the horizon. In the leftmost central region of the painting, two shadowy figures can be seen. The bright orange and red sky coincides with those created by the eruption of Krakatoa in 1883, merely a decade before the painting was finished. Identify this expressionist painting by Edward Munch titled after the utterance of the figure in the foreground.

The <u>Scream</u> (accept <u>Skrik</u> or The <u>Cry</u>)

Bonus 6: Science — Physics

Given an SI unit, name the physical quantity it measures. For example, if I said Newton, you'd say force.

Α	Siemens	<u>Conductance</u>
В	Lumen	<u>Luminous flux</u> (do not accept other answers)
С	Mole	Quantity of matter (accept number of molecules or similar)
D	Watt	<u>Power</u>

Tossup 7: Science — Biology

Their brains are characterized by the presence of a neocortex, making this group the only animals to have six-layered cortexes. Its subclass Protheria only contains echidnas and platypuses, while all other members of this class are categorized as therians. First evolving in the early Jurassic, these animals have sweat glands, ear bones, and distinctive jaws. Name this class of animals of which humans are a part.	<u>Mammals</u>
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Bonus 7: Social Studies — U.S. History

lde	entify these facts related to Bacon's Rebellion.	
Α	The rebellion occurred in this colony.	<u>Virginia</u>
В	Within 5, give the year in which the rebellion occurred.	<u>1671-1681</u> (it occurred in 1676)
С	Bacon was actually allowed a seat in this legislative body.	House of Burgesses
D	Bacon was pardoned by this man, the governor of the colony.	Sir William <u>Berkeley</u>

Tossup 8: Miscellaneous — Sports

He was not drafted in the 2003 draft, although Sean Payton had expressed interest and signed him as a free agent. Later, Payton, now head coach in New Orleans, tried to trade for him, but Jerry Jones demanded a second round draft pick. In the 2006 wild card round of the playoffs, he was tackled by Jordan Babineux after running towards the end zone following a botched hold on a field goal. Identify this quarterback, who signed a six year extension in October 2007 to quarterback the Dallas Cowboys.	Tony <u>Romo</u>
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Bonus 8: Fine Arts — Music

	entify the composers of the following operas named after their nale protagonists.	
Α	Aida	Giuseppe <u>Verdi</u>
В	Madama Butterfly	Giacomo <u>Puccini</u>
С	Carmen	Georges <u>Bizet</u>
D	Salome	Richard Strauss

Tossup 9: Math — Algebra (Computational: 30 Seconds)

How many natural number factors are there for 420, including the numbers 1 and 420? The prime factorization of 420 is 2 squared times 3 times 5 times 7.	
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Bonus 9: Science — Biology

An	swer the following about the human stomach.	
A	In order to kill bacteria and further break down food, the stomach must secrete this strong acid.	Hydrochloric acid (accept HCl)
В	The acidic environment serves to activate the zymogen for this molecule. The first animal enzyme to be discovered, it is a protease that degrades complex proteins into peptides.	<u>Pepsin</u>
С	This ring is the terminus of the stomach that adjoins it to the small intestine.	Pyloric sphincter (prompt either half)
D	This term refers to folds in the walls of any organ, though it most commonly refers to the walls of the stomach. The folds allow the stomach to expand to accommodate more food.	<u>Rugae</u>

Tossup 10: Literature — Mythology

The father of Neoptolemus, he appears in the underworld in The Aeneid and a story is told in The Odyssey of a quarrel between him and Odysseus. Patroclus' death inspired him to fight, even though his mother Thetis urged him not to return to the Trojan War after being disrespected by Agamemnon. His death came at the hands of Paris although Apollo may have guided Paris' arrow. Identify this Greek warrior, who died after being wounded behind the ankle.	<u>Achilles</u>
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Bonus 10: Miscellaneous — Entertainment

Gi	ven a description, identify the HBO show.	
Α	Many fans were upset with the ending of this show about the life of a Mobster family.	The Sopranos
В	Adrian Grenier stars as Vincent Chase in this comedy about the pleasures and pitfalls of Hollywood.	<u>Entourage</u>
С	Sarah Jessica Parker starred in this long running series about women living in New York.	Sex and the City
D	This western is set in the Dakota Territory in the 1870s.	<u>Deadwood</u>

END OF FIRST HALF – 2 minute timeout

Tossup 11: Literature — Literature

This character gets a job protecting the Weedpatch settlement from a riot planned by the Farmer's Association. When he is first seen, his journey home is compared with the journey of a turtle in an intercalary chapter, and when he is last seen, he stresses that he will continue Jim Casy's work of trying to organize the mass of migrant workers. Identify this man who breaks parole to leave Oklahoma, the protagonist of John Steinbeck's The Grapes of Wrath.

Bonus 11: Social Studies — Geography

	swer the following about an imprecise yet specific region of the ddle East.	
A	The capital city of this country featured a "Green Line" separating the Christian and Muslim militias during its 1975-90 civil war.	<u>Lebanon</u>
В	The three major rulers of this nation since its independence in 1946 have been King Abdullah I, King Hussein, and the current King Abdullah II.	<u>Jordan</u>
С	This nation's capital city was the capital of the ancient Umayyad Empire. In the 1967 Six Day War, Israel invaded this country, occupying the Golan Heights.	<u>Syria</u>
D	These three countries are included with Israel in this imprecise geographic subsection of the Middle East, bounded by the Caucasus Mountains, Mediterranean Sea, and the Arabian Peninsula.	The <u>Levant</u>

Tossup 12: Science — Chemistry

It can be defined as Boltzmann's constant times the natural log of the number of micro-states of a system. It was first defined by Rudo Clausius, who said the change in this was equal to the change in heat of a system divided by its temperature. It is considered the thermodynamic "arrow of time" because it always increases, a fact established by the Second Law of Thermodynamics. Name this quantity symbolized S, the amount of disorder in a system.	Entropy
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Bonus 12: Math — Geometry

Fir	nd the volumes of the following objects.	
Α	A sphere whose great circle has a circumference of 6 pi.	<u>36 pi</u>
В	A triangular pyramid with height 4 whose base has sides of length 3, 4, and 5.	8
С	A cylinder with a height of 3, and a lateral surface area of 15 pi.	<u>75/4 pi</u> (accept <u>75 pi/4</u> or <u>18.75</u> <u>pi</u>)
D	An oblate spheroid with semi-axes 6, 6, and 4.	<u>192 pi</u>

Tossup 13: Social Studies — World History

Its name was originally Saxe-Coburg-Gotha, but it was changed in 1917 because the name was thought to be too Germanic. This group has been in power since 1901, and saw only five rulers during the 20th century. The leader of this house, while commonly associated with one specific country, is actually ruler of sixteen different nations, including Belize, Grenada, Jamaica, and Canada. Name this current British Royal House.	House of <u>Windsor</u>
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Bonus 13: Literature — Literature

	swer these questions about Waiting for Godot, the play where thing happens, twice.	
Α	Which Irish playwright wrote the play?	Samuel Beckett
В	In what language was it originally written in?	<u>French</u>
С	Who are the two tramps who spend their time hopelessly waiting for Godot?	Vladimir and Estragon (must have both in either order)
D	Who is the owner of Lucky that mysteriously becomes blind in the second act?	Pozzo

Tossup 14: Math — Calculus

A similar theorem holds true for line integrals and potential fields, and it has higher-dimensional analogues as the divergence theorem, Green's theorem, and Stokes's theorem. It has two parts, one of which states that the definite integral from x equals a to b is equal to the indefinite integral at b, minus the indefinite integral at a. Also stating that derivatives and integrals are inverses, name this theorem upon which much of calculus is based.

<u>Fundamental Theorem</u> of Calculus

Bonus 14: Miscellaneous — Sports

	e Chicago Blackhawks underwent many changes in 2007. Given a scription of a person associated with the Hawks, name him.	
A	This longtime owner of the Blackhawks died in September 2007.	William Wadsworth "Bill" <u>Wirtz</u>
В	In November, this Cubs President became the President of the Hawks.	John <u>McDonough</u>
С	With the first pick in the 2007 NHL draft, the Blackhawks selected this 18-year-old right-winger.	Patrick Kane
D	This 2006 first round pick and former University of North Dakota star made his debut in 2007.	Jonathan <u>Toews</u> (TAYVZ)

Tossup 15: Fine Arts — Music

His most popular work during his lifetime was an 1816 piano and voice composition of a poem by Goethe (GER-ta), Der Erlkonig. That song is one of 600 he wrote in a genre of Romantic art songs, called lieder. Other famous works include his fourth symphony, nicknamed Tragic, and the Rosamunde string quartet. Identify this Austrian composer, known for composing the Trout piano quartet and his Unfinished eighth symphony.	Franz <u>Schubert</u>
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Bonus 15: Social Studies — World History

lde	entify the following ancient cities.	
Α	This "first city" of Mesopotamia was built on a hill in a depression, creating sacred lagoons around the city called apsus (AP-soos).	<u>Eridu</u>
В	During the Egyptian New Kingdom, this city was referred to as the city of Amun. The Karnak and Luxor Temples are located here.	<u>Thebes</u>
С	This city is located on the isthmus connecting the Peloponnesian peninsula to mainland Greece. It was famously led by Periander during the seventh and sixth centuries BCE.	Corinth
D	According to The Aeneid, this city in modern Tunisia was led by Dido until her suicide.	Carthage

Tossup 16: Social Studies — Geography

This island group is made up of three cantons, including Isabela and Santa Cruz. With a capital at Puerto Baquerizo Moreno, it is noted for its plentiful marine life, but its most famous visitor was looking for birds when he went there in 1835 on the Beagle. Name these islands whose finches were studied by Charles Darwin.	<u>Galapagos</u> Islands
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Bonus 16: Math — General

Na	me these mathematicians, given some of their contributions.	
A	This Greek mathematician's Elements are considered the first formal treatise on geometry.	Euclid of Alexandria
В	This mathematician's book, Arithmetica, gave rise to a class of equations named after him, whose solutions must be integers.	Diophantus of Alexandria
С	This French mathematician has a Little Theorem and a Last Theorem named after him.	Pierre de <u>Fermat</u>
D	This British mathematician devised a mechanical computer called the analytic engine which was never built.	Charles <u>Babbage</u>

Tossup 17: Miscellaneous — Entertainment

His breakthrough role came as a doctor on the 80s drama St Elsewhere, though he is better known for his work in films. He was first nominated for an Oscar for Cry Freedom, in which he played Steven Biko, and he won his first Oscar for his role in Philadelphia He starred in Antwone Fisher, which he also directed, and portrayed Malcolm X. Name this actor who played coach Herman Boone in the film Remember the Titans.	Denzel Hayes <u>Washington</u> , Jr.
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Bonus 17: Literature — Literature

	entify the following Irish or British recipients of the Nobel Prize in erature.	
A	He was awarded the 1995 Nobel for what the committee called "works of lyrical beauty and ethical depth, which exalt everyday miracles and the living past."	Seamus <u>Heaney</u>
В	Winning in 1950, this philosopher struggled over whether to call himself an atheist or agnostic.	Bertrand Russell
С	This 1923 winner co-founded The Abbey Theatre and penned The Second Coming.	William Butler <u>Yeats</u>
D	The 1925 winner was a dramatist who not only won the Nobel Prize, but also an Academy Award for the adapted screenplay of his work, Pygmalion.	George Bernard <u>Shaw</u>

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

A set contains the numbers 1, 1, 2, 3, 4, 5, 6, 6, 7, 8, and 8. What the arithmetic mean of the modes of that set?	5 5
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Bonus 18: Science — Earth Science

	swer the following questions related to the measurement of thquakes.	
A	The Richter scale measures this quality of earthquakes.	Magnitude (prompt on wave amplitude)
В	This other earthquake scale measures intensity.	Modified Mercalli scale
С	Scientists use this type of tool to measure wave amplitude.	<u>Seismograph</u>
D	Before Richter, this Japanese scientist, who along with Hugo Benioff has a scientific feature named after him, worked on developing an earthquake scale.	Kiyoo <u>Wadati</u>

Tossup 19: Literature — Language Arts

In Latin it is the second principal part of the verb and the stem for the imperfect subjunctive. In German it can function as a neuter noun. I Spanish it typically ends in the letter R. Name this form of a verb which in English can be bare, full, or split - an example of the last case can be found in "To boldly go where no one has gone before specifically the "To boldly go."	Infinitive
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Bonus 19: Fine Arts — Visual Art

lde	entify the following American painters given a work by them.	
Α	The Gross Clinic	Thomas <u>Eakins</u>
В	Three Flags	Jasper <u>Johns</u>
С	No. 5, 1948	Jackson Pollock
D	Red Hills and Bones	Georgia <u>O'Keefe</u>

Tossup 20: Science — Biology

Several tropisms are caused by environmental effects triggering th uneven release of this. The most common of this group of substance is indole-acetic <i>(in-DOLE-uh-SEE-tic)</i> acid. Responsible for ce division, growth, and the release of ethylene, name this class of plar hormones that cause stem elongation.	<u>Auxin</u> s
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Bonus 20: Math — Algebra

Fir	nd the following means.	
Α	Find the geometric mean of 3, 3, and 81.	9
В	Find the geometric mean of 2 and 64.	8 root 2
С	Find the harmonic mean of 3 and 5.	<u>15/4</u> (accept 3.75)
D	Find the harmonic mean of 2, 5, and 7.	210/59

END OF MATCH

Tossup A: Science — Physics (Computational: 30 Seconds)

Albert, Isaac, and Tycho are sitting on a see-saw twenty feet long with its fulcrum in the middle. Tycho is sitting on one end of the see-saw and weighs 300 pounds. Albert, who weighs 200 pounds, is sitting on the opposite side of the fulcrum, five feet away from the fulcrum. To balance the seesaw, Isaac sits on the same side of the fulcrum as Albert. If Isaac weighs 250 pounds, how far from the fulcrum must he sit?

<u>8 feet</u> (accept <u>2 feet from the</u> <u>end</u>)

Bonus A: Math — Other

	u have one blue bead, two green beads, and three red beads. Iculate the following.	
Α	The number of distinct ways you can line up all six.	<u>60</u>
В	The number of distinct bracelets you can make with all six.	<u>10</u>
С	The probability that you draw three red beads in a row, without replacement, from a bag containing all six beads.	<u>1/20</u> (accept 0.05)
D	The number of distinct ways you can line up all six, if no two red beads can be directly adjacent.	<u>6</u>

Tossup B: Literature — Literature

His parents were first cousins, and he would go on to be one of the foremost photographers in Victorian England. He became a lecturer in mathematics at Christ Church in Oxford, later publishing An Elementary Treatise in Determinants and Euclid and His Modern Rivals. These all paled in comparison to his literary work. Name this jack-of-all-trades, who also wrote Sylvie and Bruno, The Hunting of the Snark, and a few stories about a girl named Alice who constantly gets lost.

Bonus B: Social Studies — Current Events

Но	w much do you know about the current Congress?	
Α	Illinois has this many representatives in the House.	<u>Nineteen</u>
В	The terms of all members of the 110th Congress began on this day in 2007.	January 3
С	Speaker of the House Nancy Pelosi is from this state.	<u>California</u>
D	The Senate Majority Whip is this senior Democratic Senator from Illinois.	Richard <u>Durbin</u>

Tossup C: Social Studies — Other

Originally named dementia praecox, this mental disorder was given its present name in 1908. Until recently, it was believed to be caused by an excess of dopamine, but it is now believed to be hereditary. Five "subtypes" of this disorder exist, including paranoid, undifferentiated, and catatonic. Victims of it include Jack Kerouac and John Nash. Identify this disorder whose name translates as "split mind."	<u>Schizophrenia</u>
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Bonus C: Literature — Mythology

An	swer these questions concerning some mythic quests.	
A	After the death of his friend Enkidu, this hero of Mesopotamia seeks out a survivor of the Great Flood to learn the secret of immortality.	<u>Gilgamesh</u>
В	In order to secure his inheritance, Jason and the Argonauts sail to Colchis to retrieve this item that is guarded by a dragon.	Golden Fleece
С	Several Knights of the Round Table, including Percival and Galahad, quest for this cup used by Jesus at the Last Supper.	Holy <u>Grail</u>
D	In Roman myth, this mortal woman was forced by Venus to sort grains and bring a box of beauty back from the Underworld to earn the forgiveness of her lover Cupid.	<u>Psyche</u>

Tossup D: Miscellaneous — Entertainment

Entering MIT at age 15, and after inheriting his father's company at 21, he was seriously wounded and captured while inspecting his company's military equipment in Vietnam, and forced to build weapons for a warlord. The alter-ego of Tony Stark, identify this billionaire comic book hero, who, his heart being badly damaged, is able to survive through a life support system built into a suit of almost invincible red and yellow armor.	The Invincible Iron Man (accept Tony Stark before mentioned)
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Bonus D: Science — Biology

An	swer the following questions related to blood types.	
A	Give all the possible blood types for the child of an AB parent and an O parent.	$\underline{\underline{A}}$ and $\underline{\underline{B}}$ (in either order, but not the type $\underline{\underline{AB}}$)
В	Give all the possible blood types for the child of an A parent and an O parent.	<u>A</u> and <u>O</u> (in either order)
С	Give all the blood types that somebody with type AB blood can accept in a transfusion.	AB and O (in either order)
D	This blood factor named after a monkey can be either positive or negative.	Rh factor (accept Rh-D antigen)

Tossup E: Math — Algebra (Computational: 30 Seconds)

Find the x- and y-coordinates of the vertex of the parabola given by the equation y equals $x = 6x + 18$.	(3,9)
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Bonus E: Fine Arts — Visual Art

Giv	ven a work of art, identify the museum in which it is located.	
Α	Hopper's Nighthawks	The Art Institute of Chicago
В	The Venus de Milo	The <u>Louvre</u> Museum
С	The Elgin Marbles	The British Museum
D	Botticelli's The Birth of Venus	The <u>Uffizi</u> Gallery