



Tossup 1: Literature — Literature

<p>The main character of this work becomes involved in many failed relationships, including with the materialistic Hortense Briggs, the aristocratic Sondra Finchle, as well as a charming farmer's daughter. Based on a real murder in 1906, this novel follows a son of Midwest missionaries, Clyde Griffiths, who is executed in the electric chair for the drowning of his then girlfriend, Roberta Alden. Name this 1925 novel written by Theodore Dreiser.</p>	<p>An <u>American Tragedy</u></p>
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Bonus 1: Fine Arts — Visual Art

Identify the following works of Jacques-Louis David (<i>dah-veed</i>).		
A	This work displays the aftermath of the work of Charlotte Corday. The title character is clutching a list of names.	The <u>Death of Marat</u>
B	The title character of this work is clutching a cup of hemlock while raising his left arm upwards.	The <u>Death of Socrates</u>
C	This work is an example of extreme patriotism in the time of the French revolution. Three Roman brothers reach for three swords.	The <u>Oath of the Horatii</u>
D	Another of David's works exemplifies his wish for France to reunite after the revolution. It depicts a battle between early Rome and this tribe, whose women were abducted to repopulate Rome.	The <u>Sabines</u>



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

Reduce all fractions. Find dy/dx using implicit differentiation of $4x^3 + 6x - 9y^2 + 12 = 0$.

$(2x^2 + 1) / (3y)$

Bonus 2: Social Studies — U.S. History

Identify these facts related to Prohibition.

A	Prohibition began with this amendment.	<u>18th Amendment</u>
B	Prohibition was repealed in 1933 by this amendment.	<u>21st Amendment</u>
C	This act, otherwise known as the National Prohibition Act, was passed in 1919.	<u>Volstead Act</u>
D	This 1913 act actually allowed states to pursue prohibition on their own.	<u>Webb-Kenyon Act</u>



Tossup 3: Science — Chemistry

Though there are twenty standard ones, this term encompasses many other chemicals, including MSG and aspartame, because they contain the namesake nitrogen and carboxyl functional groups. Name this type of chemical, examples of which include tyrosine and tryptophan, ten of which are "essential," and which are the building-blocks of proteins.

Amino acid

Bonus 3: Literature — Literature

Identify the authors of the following works of nonfiction.

A	An Essay Concerning Human Understanding	John <u>Locke</u>
B	Leviathan	Thomas <u>Hobbes</u>
C	Civil Disobedience	Henry David <u>Thoreau</u>
D	Guns, Germs, and Steel: The Fates of Human Societies	Jared <u>Diamond</u>



Tossup 4: Social Studies — U.S. History

<p>It was constructed in 1921, and an update in 1932 cost \$48,000. In 1958 it gained two more residents, and a fourth was added in 1984. In 1998 it lost a member, because DNA testing proved that one of its residents was First Lt. Michael Joseph Blassie, whose plane was shot down during the Vietnam War. Name this structure located in Arlington National Cemetery, which contains the remains of three unidentified U.S. servicemen.</p>	<p><u>Tomb of the Unknown(s) Soldiers</u> (<i>prompt on partial answer</i>)</p>
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Bonus 4: Science — Biology

Identify these terms related to the human skeleton.		
A	This portion of the skeleton consists of 80 bones in the head, chest, and vertebrae.	<u>Axial</u> skeleton
B	This portion of the skeleton consists of the other 126 bones in the body, located in the arms, legs, and pelvis.	<u>Appendicular</u> skeleton
C	Tendons connect muscles to bones, but these connect bones to other bones.	<u>Ligaments</u>
D	This bone in the neck is the only one not connected to any other bone.	<u>Hyoid</u> bone (<i>accept <u>lingual</u> bone</i>)



Tossup 5: Fine Arts — Music

Although not commonly used in Western music, American composer Charles Ives made use of these by writing music for two pianos tuned fifty cents apart. They are very common in Arabic music. If all of these in one octave were played, along with the notes of the traditional Western chromatic scale, a total of 24 pitches would be sounded. Identify this interval, defined as one fourth of a whole step.	<u>Quarter-Tone</u>
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Bonus 5: Math — General

Identify these famous mathematicians.		
A	This Swiss mathematician studied many areas, including graph theory, and introduced the notation for i , sigma, and e .	Leonhard <u>Euler</u>
B	This French mathematician's famous "last theorem" was not proven for over 300 years.	Pierre de <u>Fermat</u>
C	This German mathematician is the namesake for the divergence theorem and several forms of elimination for matrices.	Carl Friedrich <u>Gauss</u>
D	This reclusive Russian mathematician recently proved the famous Poincare conjecture, but declined the Fields Medal.	Grigori <u>Perelman</u>



Tossup 6: Literature — Mythology

Among the aspects of this character's story is an inability to stay awake to gain immortality, and the loss of the ability to rejuvenate when a magic plant is stolen by a snake while bathing. His story also includes refusing the advances of Ishtar, and the slaying of the Bull of Heaven, which eventually dooms his fellow demon slayer Ekidnu to death. Identify this subject of a third millennium BCE epic from Babylonia.	<u>Gilgamesh</u>
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Bonus 6: Miscellaneous — Entertainment

Given the title of a film, identify the Shakespearean play upon which the plot was based.		
A	West Side Story	<u>Romeo and Juliet</u>
B	Ran (<i>RON</i>)	<u>King Lear</u>
C	Forbidden Planet	<u>The Tempest</u>
D	She's the Man	<u>Twelfth Night</u> (prompt on <u><i>What You Will</i></u>)



Tossup 7: Miscellaneous — Entertainment

<p>The Mask; 300; Grendel; Age of Reptiles; Aliens vs. Predator; Sin City; and Hellboy are all titles of graphic works published by what Oregon-based publisher that also publishes some of the more recently created comics based on Buffy the Vampire Slayer and Star Wars?</p>	<p><u>Dark Horse Comics</u></p>
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Bonus 7: Social Studies — Other

<p>Given a description of a type of economic market, identify the market.</p>		
<p>A</p>	<p>This most competitive of the markets requires, among other things, nearly identical products and a large volume of producers and consumers.</p>	<p><u>Perfect Competition</u> (<i>accept Pure Competition</i>)</p>
<p>B</p>	<p>This least competitive market has only 1 seller and rather different products.</p>	<p><u>Pure Monopoly</u></p>
<p>C</p>	<p>This type of market allows anyone to produce in it, but the products are not similar.</p>	<p><u>Monopolistic Competition</u></p>
<p>D</p>	<p>This type of market is characterized by very few sellers selling similar goods or services.</p>	<p><u>Oligopoly</u></p>



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

Find the inverse of the function y equals e to the quantity x plus two.	$y = \text{natural log of } x, \text{ minus } 2$ ($y = \ln(x) - 2$)
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Bonus 8: Science — Chemistry

Identify these terms related to mixtures.		
A	Homogeneous mixtures are normally called this one-word S term. An example would be salt dissolved in water.	<u>Solution</u>
B	A mixture of solid particles in liquid that will eventually settle at the bottom is called this.	<u>Suspension</u>
C	A mixture with one substance dispersed within another substance is called this. Examples are gels, emulsions, and foams.	<u>Colloids</u>
D	A mixture of two stereoisomers in equal concentration is called this.	<u>Racemic mixture</u>



Tossup 9: Social Studies — Current Events

<p>Today, February 16th, is this man's birthday, a national holiday in his country. He became the de facto ruler of his country in 1994, but his leadership did not become legitimate for another four years. Often in the news because of his nuclear activities, he is an avid film and car buff, and in 2002, George W. Bush deemed his country a member of the "Axis of Evil." Name this leader of North Korea.</p>	<p><u>Kim Jong-il</u></p>
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Bonus 9: Math — Geometry

Find the areas of the triangles with the following side lengths.		
A	3, 4, and 5	<u>6</u>
B	7, 7, and 7	<u>49 root 3 over 4</u>
C	3, 3, and 5	<u>5 root 11 over 4</u>
D	3, 6, and 7	<u>4 root 5</u>



Tossup 10: Science — Chemistry

Primarily developed by Gillespie and Nyholm, it treats multiple bonds, single bonds, and lone pairs identically even though single bonds actually take up less space. Only taking into account the configuration of the valence electrons of the central atom, name this chemical theory which helps explain electron geometry and molecular shape around a central atom.

VSEPR theory (*may be pronounced "vesper"; accept Valence Shell Electron Pair Repulsion theory*)

Bonus 10: Literature — Literature

Identify the following poems from a description.

A The main character uses his "vorpal sword" to kill the title entity, but not the Jubjub bird or the "frumious Bandersnatch."

Jabberwocky

B This poem features caves of ice and stately pleasure-domes, all the result of the author's opium induced haze.

Kubla Khan

C Written by William Cullen Bryant when he was only seventeen, this poem is a meditation on mankind's relationship with nature and with death.

Thanatopsis

D This dramatic monologue sees "women come and go, talking of Michaelangelo," and opens with an epigraph from The Inferno.

The Love Song of J. Alfred Prufrock

END OF FIRST HALF – 2 minute timeout



Tossup 11: Science — Biology

<p>Their choanocyte (<i>koh-AN-oh-site</i>) cells pump water through them, acting as a primitive digestive system. Because they have no coelom (<i>SEE-lum</i>) or circulatory system, they are thought to be one of the earliest multicellular animals. Name this primitive phylum of sessile, aquatic animals whose collagen skeletons have been largely supplanted by porous cellulose.</p>	<p><u>Porifera</u> (<i>accept sponges</i>)</p>
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Bonus 11: Literature — Literature

<p>Identify the following works of literature that all feature punctuation in the title.</p>		
<p>A</p>	<p>Including a comma, this work by Alan Paton follows a black Anglican priest named Stephen Kumalo.</p>	<p><u>Cry, The Beloved Country</u></p>
<p>B</p>	<p>Including a hyphen, this Joseph Heller work features Yossarian.</p>	<p><u>Catch-22</u></p>
<p>C</p>	<p>Including an ampersand, this Tom Stoppard play opens with the two main characters flipping a coin.</p>	<p><u>Rosencrantz & Guildenstern Are Dead</u></p>
<p>D</p>	<p>Including an exclamation point, this work by Willa Cather is usually put together with <i>My Ántonia</i> and <i>The Song of the Lark</i> to make the "Prairie Trilogy."</p>	<p><u>O Pioneers!</u></p>



Tossup 12: Social Studies — Geography

<p>It is actually a very mountainous region, with the highest being Baekdu Mountain. Rivers on it include the Han and the Yalu, and major cities include Buson and Inchon. Surrounded by the East China Sea, Sea of Japan, and Yellow Sea, it is home to two different countries. Name this peninsula which contains the cities of Pyongyang and Seoul.</p>	<p><u>Korean Peninsula</u></p>
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Bonus 12: Math — Calculus

Find the derivatives of the following functions at x equals one.		
A	x cubed minus x squared	<u>1</u>
B	the sine of the cosine of the quantity pi times x	<u>0</u>
C	e to the x	<u>e</u>
D	3 to the 2x power	<u>18 times the natural log of 3</u>



Tossup 13: Math — Algebra (Computational: 30 Seconds)

An equation for a parabola is y equals four x squared minus four x plus five. Give the equation for that parabola if it is shifted 3 units up and 2 units left.	<u>$y = 4x^2 + 12x + 16$</u>
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Bonus 13: Science — Physics

Identify these terms related to Newton's laws of motion.		
A	His first law states that things stay moving with constant velocity unless a force acts upon them, a statement of this principle first formulated by Galileo.	<u>Inertia</u>
B	His second law is usually expressed as saying that force equals mass times this.	<u>Acceleration</u> (<i>prompt a</i>)
C	His second law can also be stated as saying force is equal to this quantity divided by time.	<u>Impulse</u>
D	Newton's third law states that all action forces have an equal and opposite reaction force, a fact he generalized into this principle.	<u>Conservation of momentum</u>



Tossup 14: Miscellaneous — Sports

This network and its affiliated website both won the annual journalism competition sponsored by Military Reporters and Editors in 2007. The story was a highly controversial story that ended up being very critical of American leadership in Afghanistan, especially as it related to the death of one particular specialist who was a member of the 75th Ranger Regiment deployed near Sperah. Posting Mike Fish's "An Un-American Tragedy" on their website, and the documentary "Tillman's Final Mission", identify this network that broadcasts SportsCenter on a daily basis.

ESPN (accept *ESPN.com* and *Entertainment Sports Programming Network*)

Bonus 14: Social Studies — U.S. History

Identify the facts about the Pilgrims who came to America in the early 17th century.

A The Pilgrims arrived in this year.

1620

B The group arrived at this location, in present day Massachusetts.

Plymouth Rock

C This document, named after the ship the Pilgrims came to America on, stipulated that all the colonists had to obey the laws of the government.

Mayflower Compact

D This man, the second governor of the colony, wrote a journal detailing life in the area.

William Bradford



Tossup 15: Literature — Literature

<p>A major plot device is a handkerchief that is picked up by Emelia and given to her husband. The husband then plants this handkerchief in Cassio's lodging, leading to just the misunderstanding that Iago had planned: the belief that Desdemona has been unfaithful. A smothering occurs, followed by Desdemona's husband committing suicide. Identify this Shakespearean work featuring a titular Moor of Venice.</p>	<p>The Tragedy of <u>Othello</u></p>
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Bonus 15: Miscellaneous — Entertainment

<p>Give the titles of these films starring Benin-born actor Djimon Honsou (<i>jye-mon</i>).</p>		
A	<p>His third Oscar nomination came opposite Leonardo DiCaprio in this film about smuggling and warfare in Africa.</p>	<p><u>Blood Diamond</u></p>
B	<p>In this 1997 film, he earned an Oscar nomination for playing Cinque (<i>seen-kay</i>) who led a mutiny on a Spanish ship.</p>	<p><u>Amistad</u></p>
C	<p>Playing a freed slave, he delivered the last lines of this blockbuster film to his dead friend, a former general: "I will see you again, but not yet. Not yet!"</p>	<p><u>Gladiator</u></p>
D	<p>He earned his second Oscar nomination for this film about Irish immigrants in 2002.</p>	<p><u>In America</u></p>



Tossup 16: Fine Arts — Visual Art

Often using pastoral settings and aristocrats out for picnics as subjects, this movement also featured a great deal of portraiture. Fragonard's *The Swing* and Watteau's *Pilgrimage to Cythera*, as well as Boucher's many portraits of Madame de Pompadour best exemplify this style of painting. Identify this art movement characterized by a light, playful style that puts heavy emphasis on the ornamental and decorative.

Rococo

Bonus 16: Math — Other

Set A is 2, 3, 4, 6, and 7. Set B is 1, 3, 5, 7, and 9. The universal set is the numbers from 1 to 10, inclusive. Give the number of numbers in each of the following sets.

A	A intersection B.	<u>2</u>
B	A union B.	<u>8</u>
C	The complement of A.	<u>5</u>
D	A intersection the complement of B.	<u>3</u>



Tossup 17: Social Studies — U.S. History

<p>Christopher Newport captained the fleet that eventually founded it, and its first president was Edward-Maria Wingfield. Glass was its first export, though it sustained itself by producing tobacco. Named after the reigning English monarch, two of its more famous residents were John Rolfe and John Smith. Name this Virginia site considered the first permanent British settlement in America.</p>	<p><u>Jamestown Colony</u> (<i>accept Jamestown Settlement</i>)</p>
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Bonus 17: Science — Biology

<p>Identify these parts of the plant reproductive system.</p>		
A	<p>This is the visible male part of a plant, and consists of the filament and anther.</p>	<p><u>Stamen</u></p>
B	<p>This is the visible female part of a plant, and consists of the style, stigma, and ovary.</p>	<p><u>Carpel</u> (<i>accept pistil</i>)</p>
C	<p>The ovary of a plant eventually becomes enlarged and falls off the plant as this.</p>	<p><u>Fruit</u></p>
D	<p>This powdery substance on the top of the anther produces male sex cells.</p>	<p><u>Pollen grains</u></p>



Tossup 18: Science — Astronomy

<p>His most important findings were first published in "Astronomia Nova," and were derived from the observations of fellow astronomer Tycho Brahe (<i>TY-koh BRA-hey</i>). By looking at the orbit of Mars, this man was the first to realize that planets move in elliptical orbits. Name this astronomer who accurately described the motion of planets with his three namesake laws.</p>	<p>Johannes <u>Kepler</u></p>
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Bonus 18: Literature — Mythology

Identify the following regarding mythological transformations.		
A	Zeus transformed into this animal in order to seduce Leda, the mother of Helen as well as the Dioscuri.	<u>Swan</u>
B	She was turned into a spider after she offended Athena during a weaving contest.	<u>Arachne</u>
C	Turned into a bear by Artemis after having relations with Zeus, she gave birth to Arcas.	<u>Callisto</u>
D	Ovid describes this group of Achilles soldiers as having transformed to warriors from ants.	<u>Myrmidons</u> (<i>also accept <u>Myrmidones</u></i>)



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

Find the volume of a cone with height 12 and radius 3 pi.	<u>36 pi cubed</u>
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Bonus 19: Fine Arts — Music

Answer the following about Beethoven's Fifth Symphony.		
A	Portions of the first movement are written in this major key, containing three flats.	<u>E flat Major</u>
B	The most famous part of the symphony is presented in the first measure. That measure ends with this symbol, indicating that the note should be held longer than the noted duration.	<u>Fermata</u>
C	That brief melody can be called by this name, indicating that it is a brief but recognizable tune that recurs throughout the piece.	<u>Motif</u> (<i>Accept Motive</i>)
D	These large, pitched drums, also known as kettle drums, are often used to present the main melody of the symphony.	<u>Timpani</u>



Tossup 20: Literature — Literature

<p>More people haven't visited here because someone coughed, and the exact coordinates of the place were not heard. Raphael Hythloday describes this island in great depth including the fact that it is "crescent-shaped, like a new moon." The island features no private ownership, as well as every able-bodied citizen working towards the common good. Coming from the Greek for "place that does not exist", and largely based on Plato's Republic, identify this titular locale from a work by Sir Thomas More.</p>	<p><u>Utopia</u></p>
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Bonus 20: Social Studies — World History

Identify these New World explorers.		
A	This Frenchman was the first to explore the St. Lawrence River, naming the area "New France."	Jacques <u>Cartier</u>
B	This man was the first European to see the Grand Canyon, while searching for the Seven Cities of Gold.	Francisco Vásquez de <u>Coronado</u>
C	In addition to finding the mouth of the Mississippi in 1682, this man claimed the entire Mississippi River basin for France.	René-Robert Cavelier, Sieur de <u>La Salle</u>
D	After his ship crashed in Texas, this Spaniard walked to New Spain, becoming the first European to explore the American Southwest.	Alvar Nuñez <u>Cabeza de Vaca</u>

END OF MATCH



Tossup A: Social Studies — World History

<p>This ruler's 39 articles established their country as a Protestant nation, and one of this person's fiercest rivals was in fact their brother-in-law, Philip II, the King of Spain. Known as the Virgin Queen, she ordered the execution of Mary, Queen of Scots because she was a threat to her reign. Name this daughter of Henry VIII and Anne Boleyn, who ruled England throughout the late 16th century.</p>	<p>Elizabeth I (<i>prompt Elizabeth</i>)</p>
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Bonus A: Math — Algebra

<p>Given the two-by-two matrix with top row 3, 4, and bottom row 1, 2, calculate the following.</p>		
A	Its determinant.	<u>2</u>
B	Its trace.	<u>5</u>
C	Its inverse.	<u>Top row: 1, -2; bottom row: -1/2, 3/2</u>
D	Its transpose.	<u>Top row: 3, 1; bottom row: 4, 2</u>



Tossup B: Science — Physics

Measured in dynes per centimeter, it is caused by a tendency to minimize surface area. The phenomenon behind capillary action, it can be reduced by surfactants like soap, which is why soap bubbles can be large. Name this physical phenomenon that causes water to bead and allows water strider insects to walk on water.	<u>Surface tension</u>
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Bonus B: Literature — Literature

Answer the following about a best-selling mystery writer and some of her female characters.	
A	This resident of St. Mary Mead is a blustering biddy who uses her spinster charms to solve mysteries. Miss Jane <u>Marple</u>
B	Her real name is Prudence, but her daring nature doesn't live up to it, and her husband, Tommy, calls her by this monetary epitaph instead. <u>Tuppence</u> Beresford
C	This woman was riding on the 4:50 from Paddington when she became a witness to murder on a passing train. Mrs. Elspeth <u>McGillicudy</u>
D	The creator of parts A through C is this woman, whose hospital work during World War One inspired works like Black Coffee and Sparkling Cyanide, which centered around poisonings. Dame Agatha <u>Christie</u>



Tossup C: Literature — Literature

<p>When he was seven, his family tried to start a utopian community at Eureka Mills, Ohio. He wrote numerous book reviews in the Atlantic Monthly and was its editor from 1871 to 1881. During that time, he wrote his first novels, including <i>Their Wedding Journey</i> and <i>A Foregone Conclusion</i>, and his literary criticism was an important influence on Henry James and Stephen Crane. Identify this author and literary critic, most famous for his novel of manners <i>The Rise of Silas Lapham</i>.</p>	<p>William Dean <u>Howells</u></p>
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Bonus C: Science — Astronomy

Name these famous telescopes.		
A	This orbiting telescope was launched in 1990, when it was found to need corrective lenses for its misshapen mirror.	<u>Hubble</u> Space Telescope
B	This orbiting x-ray observatory was launched in 1999.	<u>Chandra</u> X-ray Observatory
C	This telescope located in Puerto Rico supplies the SETI@home project with data.	<u>Arecibo</u> Observatory
D	This humorously-named big observatory in New Mexico is a set of 27 telescopes laid out in a Y-shape.	<u>Very Large Array</u> (<i>accept VLA</i>)



Tossup D: Math — Calculus (Computational: 30 Seconds)

What is the area bounded by the x-axis, the y-axis, and the equation $y = 3$ times e to the negative $2x$? Because the upper bound for this integral is x equals infinity, it is an improper integral whose upper bound evaluates to zero in the antiderivative.	1.5 (accept 3/2)
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Bonus D: Social Studies — Geography

Answer the following about U.S. National Parks.	
A	This California National Park contains Mt. Whitney, the highest peak in the continental U.S., and is also home to the General Sherman Tree. <u>Sequoia</u> (and King's Canyon) National Park (do not accept King's Canyon National Park)
B	This National Park is located in parts of Idaho, Montana, and Wyoming and was the first National Park in the United States. <u>Yellowstone</u> National Park
C	California and this state are tied for the honor of having the most National Parks, with 8 each. <u>Alaska</u>
D	This state is home to Canyonlands, Zion, and Capitol Reef National Parks. <u>Utah</u>



Tossup E: Fine Arts — Music

<p>The active type of this ability is possessed by roughly 10,000 Americans. It is shared by many famous musicians, including Julie Andrews, Jimi Hendrix, and Handel. People who possess this ability can often sing a pitch without any external reference, and some can even name the pitches of bells or car horns. Name this musical phenomenon, defined as the ability to name an isolated note.</p>	<p><u>Perfect pitch</u> (<i>accept absolute pitch</i>)</p>
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Bonus E: Miscellaneous — Interdisciplinary

<p>Identify the following parts, which have absolutely nothing to do with a 1969 film starring Natalie Wood.</p>		
<p>A</p>	<p>This short, ear-length cut was the preferred hairstyle of the flappers of the 1920s.</p>	<p><u>Bob</u></p>
<p>B</p>	<p>This musical instrument consists of 23 or more bells played from a keyboard and is usually housed in a bell tower.</p>	<p><u>Carillon</u></p>
<p>C</p>	<p>He was the first U.S. President to win the Nobel Peace Prize, for arranging the peace treaty to end the Russo-Japanese War.</p>	<p><u>Theodore Roosevelt</u></p>
<p>D</p>	<p>This largest city of the Australian Outback is the closest metropolitan area to Ayers Rock.</p>	<p><u>Alice Springs</u> (<i>Bob, Carol, Ted, and Alice. Get it?</i>)</p>