



Tossup 1: Science — Astronomy

<p>The No Hair Theorem states that the only properties necessary to define these objects are angular momentum, charge, and mass. These objects are postulated to emit Hawking radiation, and the simplest kinds are called Schwarzschild. They exhibit frame-dragging due to the extreme bending of space around them, and the very center of these objects is called a singularity. Name these objects in space that have an event horizon, after the crossing of which nothing can escape.</p>	<p><u>black holes</u></p>
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Bonus 1: Literature — Literature

<p>Identify the following characters from Shakespeare.</p>		
<p>A</p>	<p>This villain from Othello stole Desdemona's handkerchief and reported that he saw Cassio with it.</p>	<p><u>Iago</u></p>
<p>B</p>	<p>This character begins as a companion to Prince Hal, and eventually scores a leading role in The Merry Wives of Windsor.</p>	<p>Sir John <u>Falstaff</u></p>
<p>C</p>	<p>This character from Macbeth's son Fleance escapes murder, though he does not, later appearing as a ghost.</p>	<p><u>Banquo</u></p>
<p>D</p>	<p>This character has no speaking lines, and is, in fact, only mentioned once in Hamlet, whose title character "knew him, Horatio."</p>	<p><u>Yorick</u></p>



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

Evaluate the derivative at x equals 5 of the function x cubed plus $5x$ squared minus $3x$ plus 2.	<u>122</u>
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Bonus 2: Social Studies — World History

Answer these questions about the 1814 Congress of Vienna, which redrew the map of Europe after Napoleon's abdication.	
A	France was represented by this foreign minister who secretly united Britain and Austria against Russia and Prussia in the middle of the conference. Charles Maurice de Talleyrand-Perigord
B	This country was partitioned yet again when Galicia went to Austria, Posen to Prussia, and the Duchy of Warsaw to Russia. Poland
C	A United Kingdom of the Netherlands, proclaimed under Prince William of this royal house, was forged out of present-day Holland, Belgium, and Luxembourg. House of Orange-Nassau
D	Although the Papal States were restored under Pius VII, the Holy See had to relinquish all claims to this French city that had been home to the popes four centuries earlier. Avignon



Tossup 3: Fine Arts — Music

<p>Its idea was originally conceived by the painter Nikolai Roerich, who eventually designed the sets for its initial run. Its first part is "The Adoration of the Earth", which is succeeded by a second part featuring "Mystic Circles of the Young Girls" prior to its final "Sacrificial Dance". Choreographed by Vaslav Nijinsky and opening to riots in the aisles, identify this primitive Stravinsky ballet.</p>	<p>The <u>Rite of Spring</u> (<i>accept Le <u>Sacre du Printemps</u></i>)</p>
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Bonus 3: Miscellaneous — Interdisciplinary

<p>It's time to take a journey beginning with Lewis and Clark's famous companion, Sacagawea.</p>		
<p>A</p>	<p>Sacagawea was a member of this tribe of Native Americans, who for centuries called Idaho, Wyoming, and Utah home.</p>	<p><u>Shoshone</u></p>
<p>B</p>	<p>Sacagawea spoke a number of Native American languages, English, and this other European language.</p>	<p><u>French</u></p>
<p>C</p>	<p>Sacagawea's golden dollar coin replaced the dollar coin featuring this early feminist.</p>	<p>Susan B. <u>Anthony</u></p>
<p>D</p>	<p>This President is the most recently deceased person who appears on a form of U.S. currency.</p>	<p>John F. <u>Kennedy</u></p>



Tossup 4: Social Studies — U.S. History

<p>This man adopted several children, some of whom were related to him. The child of Irish immigrants, all of his close family was already dead by the time he was a teenager. A practitioner of frontier law, he was elected to the senate at the age of 30, but quickly resigned to serve on the Supreme Court of Tennessee. At one point the military governor of Florida, he was also a commander at the Battle of New Orleans. Name this 7th U.S. President, a man known as Old Hickory.</p>	<p>Andrew <u>Jackson</u></p>
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Bonus 4: Science — Chemistry

Identify the following related to radioactive decay.		
A	This is the term for elements with an atomic number greater than 92, all of which decay.	<u>Transuranic element</u> (<i>accept <u>transuranium element</u></i>)
B	This type of particle has two protons and two neutrons, and is emitted from some radioactive elements.	<u>Alpha particle</u>
C	This mode of radiation is simply a high-energy electromagnetic wave, shorter than x-rays.	<u>Gamma ray</u>
D	This particle has the same mass of an electron but opposite charge, and is emitted when a proton changes into a neutron.	<u>Positron</u> (<i>accept <u>antielectron</u></i>)



Tossup 5: Literature — Literature

<p>One work based on him is told in a frame narrative by his friend Serenus Zeitblom. Another work featuring him tells of a walk he takes with his assistant Wagner, and a poodle following him home. His further adventures lead to a romp with a girl named Gretchen. Represented by Adrian Leverkühn in a work by Thomas Mann, he was also famously written about by Marlowe and Goethe (<i>GUR-tuh</i>). Making a pact in order to gain knowledge, identify this man, the textbook example of selling one's soul to the Devil.</p>	<p>Faust (accept <i>Doktor Faustus</i> on early buzz)</p>
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Bonus 5: Math — General

<p>It states that, in a right triangle, the square of the hypotenuse equals the sum of the squares of the legs.</p>		
A	Name this theorem from geometry.	Pythagorean theorem (accept <i>Pythagoras' theorem</i>)
B	A generalization of that law is this law, which relates the three sides of a triangle and the namesake function of an angle.	Law of <u>cosines</u>
C	The theorem in part 1 was proved by this man in Book One of "The Elements."	Euclid of Alexandria (accept <i>Eukleides</i>)
D	A generalization of the theorem in part 1 leads to this formula in coordinate geometry to determine how far apart two points are.	<u>distance</u> formula



Tossup 6: Science — Biology

<p>This process can be stopped by colchicine in plants, resulting in polyploid offspring. Halfway through this cellular process, a cell enters interkinesis. Its first phase is a reductional division producing two haploid cells, which further divide into four haploid gametes. Name this process in which a cell divides into four sex cells, unlike the similar process of mitosis.</p>	<p><u>Meiosis</u></p>
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Bonus 6: Miscellaneous — Interdisciplinary

<p>Let's take a journey with one of Italy's most famous artists, Leonardo Da Vinci.</p>		
A	<p>An airport named after Leonardo Da Vinci is located outside of this Italian city.</p>	<p><u>Rome</u></p>
B	<p>Da Vinci was to take part in an artistic duel with this other famous Italian artist in the Florentine town hall, but sadly the project fell through.</p>	<p><u>Michelangelo Buonarotti</u></p>
C	<p>A noted Da Vinci mural features this first pope seated to the right of Jesus.</p>	<p><u>Saint Peter</u></p>
D	<p>From 1656 to 1657, this architect constructed the Roman piazza in front of the Basilica named for the pope in question three.</p>	<p><u>Gian Lorenzo Bernini</u></p>



Tossup 7: Social Studies — Other

<p>This Church's American form was created after it was forced to split from the Church of England following the American Revolution. Often seen as more progressive than its fellow Christian sects, in 2006, Jefferts Schori became the first woman to oversee this Church, which still uses a version of the Book of Common Prayer. Name this religion, which over a quarter of U.S. Presidents have subscribed to.</p>	<p><u>Episcopalianism</u></p>
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Bonus 7: Math — Algebra

<p>Give the prime factorizations of the following numbers, arranging the factors from smallest to largest.</p>		
A	152.	<u>2 cubed * 19</u> (or <u>2 * 2 * 2 * 19</u>)
B	42.	<u>2 * 3 * 7</u>
C	83.	<u>83</u>
D	164.	<u>2 squared * 41</u> (or <u>2 * 2 * 41</u>)



Tossup 8: Literature — Literature

<p>Early on, he is instructed to "Give liberty unto thine eyes; Examine other beauties." He goes on to do just this, after generously giving some of his time helping read to the illiterate. Probably based on the mythological Pyramus, he has a personal servant, Balthasar, as well as an unrequited infatuation with Rosaline, for whom he pined away prior to the events of a party he attended. A cousin of Benvolio and friend to Mercutio, identify this man from the house of Montague, who killed himself over the loss of his love, Juliet.</p>	<p><u>Romeo Montague</u></p>
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Bonus 8: Science — Earth Science

<p>Identify the following classes of minerals, keeping in mind that minerals are classified chemically, often according to common polyatomic ions.</p>		
A	<p>Most rocks are members of this family, including feldspars, quartz, and micas.</p>	<p><u>Silicates</u></p>
B	<p>Gypsum is the most notable member of this class which can form in hydrothermal vein systems.</p>	<p><u>Sulfates</u></p>
C	<p>Northern Utah and Israel are sources for these minerals which include many fluorides, chlorides, bromides, and iodides.</p>	<p><u>Halides</u> (<i>do not accept <u>halites</u></i>)</p>
D	<p>When found in karst regions, these dissolution and deposition of these minerals is crucial in the formation of caves, stalactites, and stalagmites.</p>	<p><u>Carbonates</u></p>



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

In $a + b i$ form, give the product of the complex numbers $4 + 2 i$ and $3 - 5 i$.	<u>22 - 14 i</u>
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Bonus 9: Social Studies — Geography

Identify the geographical feature of the American Southwest.		
A	This is the river that flows through the Grand Canyon.	<u>Colorado River</u>
B	This National Park located on I-40 in Eastern Arizona is also the name of a Robert Sherwood play.	<u>Petrified Forest National Park</u>
C	This saline body of water in California lies south of Joshua Tree National Park and west of Chocolate Mountain Naval Reservation.	<u>Salton Sea</u>
D	This point, where Utah, Arizona, Colorado, New Mexico meet, is administered by the Navajo Nation.	<u>Four Corners</u>



Tossup 10: Science — Chemistry

<p>Lead is a poison for some of these. Platinum functions as this for the conversion of carbon monoxide to carbon dioxide. Their activity is measured in enzyme units or moles per second, and they cannot shift the equilibrium of a reaction. Another one of these is iron in the Haber process. Name this type of substance which speeds up a reaction without being consumed by the reaction.</p>	<p><u>Catalyst</u></p>
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Bonus 10: Literature — Literature

<p>Identify the following about works set in Italy.</p>	
<p>A</p>	<p>The protagonist of this novel by Henry James visits the Colosseum at night with Giovanelli, but ends up contracting a fever and dies.</p> <p><u>Daisy Miller</u></p>
<p>B</p>	<p>Gustav von Aschenbach is a writer obsessed over a fourteen-year-old Polish boy, and who dies of cholera in this work by Thomas Mann.</p> <p><u>Death in Venice</u> (<i>accept Der Tod in Venedig</i>)</p>
<p>C</p>	<p>In "A Farewell to Arms," this lieutenant is sent to Milan to recoup from his wounds, which is where he falls for Catherine Barkley.</p> <p><u>Frederick Henry</u></p>
<p>D</p>	<p>Set during the Florentine Black Plague of 1348, the narrator introduces ten storytellers who are escaping from the plague in this Boccaccio work.</p> <p><u>The Decameron</u></p>



Tossup 11: Miscellaneous — Entertainment

<p>This movie opens with the murder of a crooked cop, who keeps trying to get into the trunk of the protagonist's convertible. In that convertible is \$200,000 in drug money from Jimmy Grantz, the drug dealing boyfriend of a bartender at Ferdys. Guy Pearce portrays the main character, who has the words "Remember Sammy Jenkins" tattooed onto his left hand. Name this film which starts by showing the end of the story, and alternately flashes back and forth through time, narrated by a man who can't maintain his short term memories.</p>	<p><u>Memento</u></p>
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Bonus 11: Science — Biology

<p>Identify the following facts related to codons, sequences of base pairs in DNA.</p>		
A	<p>A codon is a group of this many DNA base pairs.</p>	<p><u>3</u></p>
B	<p>A codon encodes for one in a sequence of these residues in a protein.</p>	<p><u>Amino acid</u></p>
C	<p>One codon encodes for methionine, as well as serving this special function for ribosomes.</p>	<p><u>Start codon</u></p>
D	<p>If a base pair is added or deleted from DNA, all subsequent codons will be thrown off by one base pair, a mutation known as this.</p>	<p><u>Frame shift mutation</u></p>



Tossup 12: Literature — Mythology

<p>In a lost work, Hesiod mentions that he is the son of the sea-god Poseidon and Euryale. That same work tells of a trip he took, walking across the sea thanks to his father, to the island of Chios, where he attacked the daughter of Oenopion, Merope. Following this episode, he went on a hunting trip with Artemis, during which he threatened to kill every beast on Earth. Gaia, of course, didn't take too kindly to this idea and sent a giant scorpion to kill him. Identify this mythological hunter who, along with his dog Sirius, was placed among the stars as a constellation after his death.</p>	<p><u>Orion</u></p>
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Bonus 12: Fine Arts — Visual Art

<p>Identify the following about some weird paintings.</p>		
<p>A</p>	<p>This cubist painting by Marcel Duchamp exhibited at the Armory Show was described as "an explosion in a shingle factory."</p>	<p><u>Nude Descending a Staircase, No. 2</u></p>
<p>B</p>	<p>Rene Magritte's The Son of Man features a man in a bowler hat whose face is obscured by one of these.</p>	<p><u>green apple</u></p>
<p>C</p>	<p>Among the wacky creations of this Bulgarian "environmental sculptor" are a wall of oil drums and wrapping the Reichstag in fabric.</p>	<p><u>Christo Javacheff</u></p>
<p>D</p>	<p>The "Disintegration" of this painting contains brick-like shapes that float and a segmented tree.</p>	<p>The <u>Persistence of Memory</u></p>



Tossup 13: Miscellaneous — Technology

<p>Originally announced in a comic drawn by Scott McCloud, it includes optimizations like DNS prefetching and separate processes for each tab. It features V8, currently the fastest JavaScript engine, and has built-in support for its company's Gears platform. Powered by the WebKit platform, name this web browser introduced in September 2008, named after the interface portion of web browsers, and made by Google.</p>	<p>Google <u>Chrome</u></p>
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Bonus 13: Math — Calculus

<p>Evaluate the definite integrals of the following functions, from x equals 1 to x equals 2.</p>		
A	x squared + 3.	<u>16/3</u>
B	natural log of x.	<u>2 natural log of 2, - 1</u>
C	sine of 2.	<u>sine of 2</u>
D	3 x - 5.	<u>-1/2</u>



Tossup 14: Literature — Literature

<p>In this novel, partisans for the defendant in a trial chant Mrs. Moore's name, because she would have testified to his innocence. However, her son Ronald Heaslop, the city magistrate and fiancé of the accuser, has already sent his mother out of the country. The act in question allegedly occurred outside the city of Chandrapore in the booming Marabar Caves. Though Adela Quested eventually admits to bringing false accusations, Cyril Fielding convinces his friend not to press for legal damages from her. Name this book in which Dr. Aziz is accused of rape, written by E.M. Forster.</p>	<p><u>A Passage to India</u></p>
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Bonus 14: Science — Astronomy

<p>Name these moons of the solar system.</p>		
<p>A</p>	<p>Named for the Greek god of fear, it is one of the two moons of Mars with Deimos.</p>	<p><u>Phobos</u></p>
<p>B</p>	<p>This moon of Jupiter is the largest known satellite in the solar system.</p>	<p><u>Ganymede</u></p>
<p>C</p>	<p>Mostly composed of ice and rocky material, this is the largest moon of Saturn.</p>	<p><u>Titan</u></p>
<p>D</p>	<p>The innermost of the four Galilean moons, it has plains of sulfur-containing material on its surface.</p>	<p><u>Io</u></p>



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

If you flip a fair, two-sided coin four times, what is the probability you get three or more tails?	<u>5/16</u>
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Bonus 15: Social Studies — U.S. History

Identify the following about Military Ranks in the U.S. Army.	
A	This Officer rank is signified by two silver bars, and is preceded by 1st Lieutenant and ranks below Major. <u>Captain</u>
B	The Enlisted rank just above Private First Class, it is the same pay grade as Corporal, but does not receive NCO status. New recruits with four year degrees begin at this rank. <u>Specialist</u>
C	This rank is only given in wartime, and there have only been a few people to hold it, including Omar Bradley, Douglas MacArthur and Dwight D. Eisenhower. <u>General of the Army</u> (<i>accept <u>Five-Star General</u>; do not accept <u>General of the Armies</u>, it is very different</i>)
D	This is a ranking that is not a full officer, but above the enlisted rankings. It is typically used for long-serving technicians and aviators. <u>Warrant Officer</u>



Tossup 16: Science — Physics

An equation for these entities is a canonical hyperbolic partial differential equation, and a standing one of these can arise from two of these going in opposite directions. These entities can be polarized or engage in dispersion, and also can be diffracted or refracted. They can be either longitudinal or transverse, and are described by their speed and amplitude along with wavelength or frequency. Name these disturbances whose types include electromagnetic and acoustic, that transfer energy by propagating through a medium.

waves

Bonus 16: Literature — Literature

Answer the questions about exclamatory works.

A O Pioneers! is a novel by this author set in Nebraska.

Willa Cather

B Upton Sinclair depicted Bunny in this novel that inspired There Will Be Blood.

Oil!

C Ah, Wilderness! is the only comedy by this playwright of The Hairy Ape.

Eugene O'Neill

D Fiesta! was the original title of this Hemingway novel featuring Jake Barnes.

The Sun Also Rises



Tossup 17: Fine Arts — Music

<p>This work takes its name from Hart Crane's <i>The Dance</i>, though its title has little to do with the main action. The original script included such parts as "Eden Valley" and "Wedding Day", and the composer incorporated the selection "Simple Gifts", a Shaker hymn, into its musical sequences. It was first commissioned in 1942 and was to be called <i>Ballet for Martha</i> in honor of its choreographer. Name this ballet choreographed by Martha Graham and composed by Aaron Copland (<i>KOPE-lind</i>).</p>	<p><u>Appalachian Spring</u></p>
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Bonus 17: Science — Earth Science

<p>Identify these terms that describe grasslands in various parts of the world.</p>		
<p>A</p>	<p>From the French for pasture, this term describes the North American terrain from Saskatchewan to Texas and Wyoming to Illinois.</p>	<p><u>prairie</u></p>
<p>B</p>	<p>Once unsuitable for livestock because of the tsetse fly, this term that means field in Afrikaans now defines the huge grazing lands of South Africa.</p>	<p><u>veldt</u> (<i>accept veld</i>)</p>
<p>C</p>	<p>This term, from the Russian for flat land, describes the largest grassland in the world, stretching across Eurasia from Hungary to Mongolia.</p>	<p><u>steppes</u></p>
<p>D</p>	<p>Originally from the Quechua word for plain, this term can be applied to all of South America east of the Andes and south of the Amazon rain forest.</p>	<p><u>pampas</u></p>



Tossup 18: Literature — Literature

<p>The 1735 updated edition of this work features a letter from the title character to his Cousin Sympson, complaining about what the editor of the previous edition had left out of the original publication. One episode in it sees the surface city of Lindalino, representing the real city Dublin, rebel against Laputa, a flying island. Also telling of the uproar about Big-Endianism and Little-Endianism, the horse-like Houyhnhnm people, and the quarrel between Blefuscu and Liliput, identify this work by Johnathan Swift.</p>	<p><u>Gulliver's Travels</u></p>
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Bonus 18: Literature — Mythology

<p>Identify the following concerning mythical apparel.</p>		
<p>A</p>	<p>On his journey to slay Medusa, this deity lent Perseus his winged sandals.</p>	<p><u>Hermes</u> (accept <u>Mercury</u>)</p>
<p>B</p>	<p>The Oracle at Delphi warned Pelias, king of Iolcus to be wary of this one-sandaled Greek hero who would cause his downfall.</p>	<p><u>Jason</u></p>
<p>C</p>	<p>At Ragnarok, Vidar will use a shoe made of all the discarded shoe leather in the world in order to slay this creature.</p>	<p><u>Fenris</u> (accept <u>Fenrir</u> or <u>Fenris-wolf</u>)</p>
<p>D</p>	<p>His birthright included a pair of sandals and a sword, which were left under a huge rock by his father Aegeus.</p>	<p><u>Theseus</u></p>



Tossup 19: Science — Astronomy

<p>Its core contains nickel and iron, and its mantle contains water. Similar to Jupiter's Great Red Spot, this planet features a Great Dark Spot. It was confirmed that it has rings when, in the late 1980s, it was visited by Voyager 2. Name this planet whose largest moon is Triton, and is the eighth planet from the sun.</p>	<p><u>Neptune</u></p>
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Bonus 19: Fine Arts — Visual Art

Name these facts related to Diego Rivera.		
A	Rivera was married to this Mexican painter, who was in a horrific accident as a teenager.	Frida <u>Kahlo</u>
B	In 1933, Rivera's <i>Man at the Crossroads</i> , at this New York City location, was torn down because it contained an image of Lenin.	<u>Rockefeller Center</u>
C	This fellow muralist painted <i>Departure of Quetzalcoatl</i> .	Jose Clemente <u>Orozco</u>
D	This other muralist, who became friends with Rivera while the two were in France, painted <i>Del Porfirismo a la Revolución</i> .	David Alfaro <u>Siqueiros</u>



Tossup 20: Social Studies — World History

<p>His parents were Robert and Herleva, and his sister was Adelaide. After Edward the Confessor died, this man gained the support of Pope Alexander II, but he still had to defeat Harold Godwinson. The Bayeux Tapestry commemorates his victory over Godwinson at the Battle of Hastings. Name this Norman who became King of England in 1066.</p>	<p><u>William the Conqueror</u> (<i>accept <u>William I</u></i>)</p>
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Bonus 20: Literature — Mythology

<p>Identify the following about the death of family members in mythology.</p>		
<p>A</p>	<p>This brother of Eteocles fought with him over the throne of Thebes, and their fight ultimately led to the deaths of Antigone and Haemon.</p>	<p><u>Polyneices</u></p>
<p>B</p>	<p>The first man to kill a relative, he fathered the centaurs via sleeping with a cloud shaped like Hera.</p>	<p><u>Ixion</u></p>
<p>C</p>	<p>After Acrisius learned that this grandson would kill him, he attempted to cause the death of the boy's mother. As an adult, he participated in a discus competition, and during one throw he accidentally killed Acrisius.</p>	<p><u>Perseus</u></p>
<p>D</p>	<p>Phlexippus and Toreus taunted him over the aftermath of the hunt for the Calydonian Boar, and he killed them in response. His mother then caused his death by burning a special log.</p>	<p><u>Meleager</u></p>



Tossup A: Social Studies — Geography

Its name means "Great River," and part of it was once called the Lewes River. Starting at Tagish and Atlin Lakes, it flows over 2000 miles westward, before emptying into the Bering Sea. Polluted by miners, it was the main route for travelers in the 1890s during the Klondike Gold Rush. Name this river that flows through Alaska and Canada, the latter of which in its namesake territory.

Yukon River

Bonus A: Fine Arts — Music

Identify these things about the piano piece "Pictures at an Exhibition."

A Pictures at an Exhibition was written by this Russian composer of Night on Bald Mountain.

Modest Mussorgsky

B It features music representations of paintings by this Russian architect and painter who died in 1873.

Viktor Hartmann

C This piece appears between each painting in the work, representing the composer strolling in the gallery.

Promenade

D Pictures at an Exhibition is often played in its orchestration by this French composer of Bolero.

Maurice Ravel



Tossup B: Math — General (Computational: 30 Seconds)

Give the sum of the tenth Fibonacci number and the tenth prime number. The first two Fibonacci numbers are 1 and 1, and the first two primes are 2 and 3.	84 ($55 + 29$)
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Bonus B: Social Studies — U.S. History

Answer these questions about people who have appeared on large denominations of U.S. Currency.	
A	On the 500 dollar bill was this President whose term was rudely interrupted by Leon Czolgosz (<i>CHOL-gosh</i>). William <u>McKinley</u>
B	The 1000 dollar bill featured this President whose two terms were also rudely interrupted, this time by Benjamin Harrison. Grover <u>Cleveland</u>
C	The 5000 dollar bill included a portrait of this author of Federalist Paper Number 10 about factions. James <u>Madison</u>
D	The 10,000 dollar bill featured this Treasury Secretary under Lincoln who was appointed to the Supreme Court in 1864. Salmon Portland <u>Chase</u>



Tossup C: Fine Arts — Visual Art

<p>Four people are visible in this painting, though only one is standing. Based off a location in Greenwich Village, dark streets are contrasted with the brightly lit indoors. A man in a black coat has his back turned, while a couple is angled toward the viewer, and worker behind a counter is bending over. Name this 1942 painting set in a diner by Edward Hopper.</p>	<p><u>Nighthawks</u></p>
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Bonus C: Math — Geometry

Find the volumes of the following figures.		
A	A cube with face diagonals of 4.	<u>16 root 2</u>
B	A cylinder with height of 4 and radius of 3.	<u>36 pi</u>
C	A sphere circumscribed about a cube with volume 64.	<u>32 pi / 3</u>
D	A pyramid with height 4, and whose base has area 2.	<u>8/3</u>