Tossup 1: Literature — Mythology

He is oftentimes depicted as a cranky, skinny old man or as a winger demon wielding a double hammer. Other times he is shown as a skeleton-like figure. In the Aeneid, a golden bough presented by a sibyl is all it takes to get by him, but in some regions of ancient Greece, the deceased were buried or cremated with two gold coins over their eyes in order to pay this man. Guiding newly dead souls across the river Acheron, identify this ferryman of Hades.	<u>Charon</u>
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Bonus 1: Fine Arts — Visual Art

Ide	entify the architects of the following structures.	
Α	Gateway Arch	Eero <u>Saarinen</u>
В	Rock and Roll Hall of Fame	leoh Ming <u>Pei</u>
С	Fallingwater	Frank Lloyd Wright
D	Guggenheim Museum in Bilbao, Spain	Frank Owen <u>Gehry</u>

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

Find the two points of intersection of the curves y equals 7x minus 7 and y equals x squared plus 5. The most efficient way of solving this problem is setting the equations equal to each other, then solving the resulting expression for x. Remember to give both points of intersection.	(3,14) and (4,21)
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Bonus 2: Social Studies — U.S. History

lde	entify these women who have been immortalized on U.S. currency.	
A	The dollar coin depicting this woman was so frequently mistaken for a quarter that it was discontinued in 1981, but made a brief comeback in 1999.	Susan B. <u>Anthony</u>
В	This First Lady, the only woman featured on a currency note, graced the \$1 Silver Certificate in 1886, 1891, and 1896.	Martha Dandridge Custis Washington
С	A \$10 note issued during the Civil War shows this Native American in a scene titled "Introduction of the Old World to the New World."	Pocahontas (accept <u>Matoaka</u> , <u>Amonute</u> , and Rebecca <u>Rolfe</u>)
D	This Shoshone woman and her baby appear on the gold-colored dollar first minted in 2000.	<u>Sacagawea</u>

Tossup 3: Science — Chemistry

Moissan after years of effort, a task eactivity of this element. A member of to be synthesized, this yellow-brown ne this chemical element, the smallest ve element.
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Bonus 3: Science — Earth Science

lde	entify these layers of the Earth's atmosphere.	
Α	This is the lowest layer of the atmosphere, extending several kilometers up from the surface.	<u>Troposphere</u>
В	This is the middle layer of the atmosphere, which lies above the maximum altitude of aircraft, but below the minimum altitude for orbiting objects.	<u>Mesosphere</u>
С	This part of the atmosphere is filled with namesake charged particles.	<u>lonosphere</u>
D	This is the outermost layer of the Earth's atmosphere.	<u>Exosphere</u>

Tossup 4: Social Studies — Geography

Within its borders are the Buffalo Gap National Grassland and Palmer Creek. The reservation for the Oglala Sioux is located here, along with the Cheyenne River. Despite the poor plant conditions, animals such as coyotes and bison thrive in it. Name this national park in South Dakota that almost completely lacks vegetation.	Badlands National Park
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Bonus 4: Literature — Literature

Giv	ven two works, name the British Romantic writer who penned them.	
Α	The Lady of the Lake, Ivanhoe	Sir Walter <u>Scott</u>
В	The Last Man, Frankenstein	Mary Shelley (accept Mary Wollstonecraft Shelley, prompt on Shelley)
С	Persuasion, Sense and Sensibility	Jane <u>Austen</u>
D	"Lines Composed A Few Miles above Tintern Abbey", "The Daffodils"	William Wordsworth

Tossup 5: Fine Arts — Music

Bonus 5: Math — Geometry

An	swer the following about a cube of side length 4.	
Α	What is its volume?	64 units cubed
В	What is the length of its great diagonal?	4 root 3 units
С	What is the volume of a sphere circumscribed about it?	32 pi root 3 units cubed
D	What is the volume of an inscribed cylinder?	16 pi units cubed

Tossup 6: Literature — Literature

It was written in response to Eisenhower's unilateral nuclear test freeze, which the Soviets promised to join, then backed out of. It centers on the Filipino son of a rich industrialist who chooses to enter military service in a world where only those who serve can become full citizens. He eventually rises through the ranks after engaging the enemy, the communist-like Arachnids. Name this Heinlein work, the only work of science fiction to ever appear on the reading list at all four military service academies.	Starship Troopers
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Bonus 6: Miscellaneous — Interdisciplinary

Ide	entify the following related three-word terms.	
A	The three word term applied to October 20, 1973, when Robert Bork, promoted from solicitor general, fired special prosecutor Archibald Cox.	Saturday Night Massacre
В	This current events and fiction magazine was published from 1821 through 1969, but is now a quarterly magazine after libeling a pair of football coaches.	Saturday Evening Post
С	In this 1977 film, Tony Manero rises above his go-nowhere job, his parents, and local community tensions, when he becomes the dance king at the local disco.	Saturday Night Fever
D	This weekly variety show is taped before a studio audience as it always has from Studio 8-H at the GE Building at Rockefeller Center.	Saturday Night Live

Tossup 7: Miscellaneous — Entertainment

Born Ilyena Vasilievna Mironov, she cannot speak Russian fluently though played two Russians early in her career: a cosmonaut in the film 2010, and Mikhail Baryshnikov's former lover in White Nights. In 1991, she played Jane Tennison for the first of seven times. She played Queen Charlotte in The Madness of King George, the voice of the title character in 1995's The Snow Queen, the voice of the Queen of Egypt in The Prince of Egypt, and was thus the only choice to play similarly named queens in 2005 and 2006. Name this actress who won two Golden Globes in 2007 for portraying the two Queen Elizabeths.	Helen <u>Mirren</u>
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Bonus 7: Social Studies — U.S. History

lde	entify these cities struck by disasters throughout U.S. history.	
Α	Large parts of this Midwestern city had to be rebuilt after a fire swept through it in 1871.	Chicago, IL
В	Thousands of people were killed when this Texas city sustained major damage from a hurricane in 1900.	Galveston, TX
С	An earthquake registering in the upper 7's hit this west coast city in 1906.	San Francisco, CA
D	In 1981, part of the Hyatt Regency Hotel in this city collapsed.	Kansas City, MO

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

Find the surface area of a sphere inscribed in a cube with sides of length 2.	4 pi units squared
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Bonus 8: Science — Biology

Ide	entify these terms related to cancer.	
A	Cancer causes tumors, but some tumors are not cancerous, and are instead called this.	Benign tumors
В	This term refers to cancer spreading to other parts of the body.	<u>Metastasis</u>
С	This is the mutated gene in a cell that causes it to become cancerous.	Oncogene
D	This is the use of toxic drugs to kill cancerous cells.	Chemotherapy

Tossup 9: Social Studies — Other

This Italian was originally named for John the Baptist. After renouncing his father, he heard a sermon that prompted him to devote himself to a life of poverty and formed the "Friars Minor" in 1209. Name this patron saint of animals and the environment.	St Francis of Assisi
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Bonus 9: Math — Other

Giv	ven the set 1, 1, 3, 4, 9, 10, calculate the following values.	
Α	Its mean.	<u>14/3</u>
В	Its median.	<u>7/2</u> (accept <u>3.5</u>)
С	Its mode.	1
D	Its range.	9

Tossup 10: Science — Physics (Computational: 30 Seconds)

A car is traveling at 20 meters per second when it begins decelerating uniformly at 2 meters per second squared. From the point at which the car starts decelerating, how far does the car travel before i comes to a full stop?	
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Bonus 10: Literature — Literature

lde	entify the following unrelated authors.	
A	He made a name for himself as Boz, but serialized novels like David Copperfield, A Tale of Two Cities, and Great Expectations made him truly famous.	Charles <u>Dickens</u>
В	This French author brought swashbuckling adventure to life through his characters Athos, Porthos, Aramis, and Edmond Dantes.	Alexandre <u>Dumas</u> Pere or Senior
С	This Italian documented the journey of the soul after death in a three-part story, as guided by a poet and his lover.	<u>Dante</u> Alighieri
D	This author was well known for his children's stories, such as Charlie and the Chocolate Factory.	Roald <u>Dahl</u>

END OF FIRST HALF - 2 minute timeout

Tossup 11: Science — Astronomy

Represented by a sickle, this planet has 95 times the mass of the Earth. Located at an average of nine astronomical units from the sun it has 48 named moons, and is mostly composed of hydrogen gas With rings first observed in 1610 by Galileo, name this planet, the second-largest planet in the solar system, and the sixth planet from the sun.	<u>Saturn</u>
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Bonus 11: Literature — Mythology

Gi	ven a Greek deity, identify his or her mother.	
Α	Dionysus	<u>Semele</u>
В	Hera	Rhea
С	Artemis	<u>Leto</u>
D	Hermes	<u>Maia</u>

Tossup 12: Social Studies — U.S. History

It occurred at 2212 N. Clark St, and some of the perpetrators were dressed as policeman. While this event dealt a huge blow to the leader's rival, it also turned out to be his downfall. That leader was Al Capone, and the intended target was the rival gang led by Bugs Moran. Name this 1929 event occurring on a February holiday.	St. Valentine's Day Massacre
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Bonus 12: Math — General

Na	me these laws from math.	
A	This law for triangles states that the sine of angle a, over side a, equals the sine of angle b, over side b.	Law of Sines
В	This law states that c squared equals a squared plus b squared minus two a b cosine angle c.	Law of <u>Cosines</u>
С	This property of integers states that adding any two integers yields another integer.	Closure under addition
D	This property of equality states that if a equals b and b equals c, then a equals c.	Transitive property

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

Find the determinant of the three-by-three matrix with top row 1, 7, 3; middle row 2, 4, 0; and bottom row 2, 1, 1.	<u>-28</u>
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Bonus 13: Science — Chemistry

lde	entify these temperature scales given a reference temperature on it.	
Α	The SI base unit for temperature, absolute zero is at zero on this scale.	Kelvin
В	Commonly used in countries other than the U.S., according to this scale, water freezes at zero and boils at 100.	Celsius (accept centigrade)
С	On this scale commonly used in the U.S., absolute zero is at about negative 459 degrees.	<u>Fahrenheit</u>
D	This scale used only by engineers in certain countries places the freezing point of water at about 491 and the boiling point at about 671 degrees.	<u>Rankine</u>

Tossup 14: Miscellaneous — Interdisciplinary

Derived from the German for "to vex", Roald Dahl heard stories about them, and wrote a short story which was sent to Walt Disney. Bugs Bunny had to deal with them in the short "Falling Hare", but it did no make real inroads into American culture until a famous episode on "The Twilight Zone" where a recovering mental patient played by William Shatner sees one on the wing of the airplane he is flying home in. Name these folk creatures, more famously the subject of a 1984 Joe Dante film.	<u>Gremlin</u> s
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Bonus 14: Social Studies — Geography

lde	entify these superlative locations on Earth.	
Α	This country borders 16 countries, more than any other.	People's Republic of China
В	The deepest lake in the world is Lake Baikal in this country.	Russia
С	This river runs through more Asian countries than any other river.	<u>Mekong</u>
D	The most densely populated country is this country, with 9000 people per square mile.	Principality of Monaco

Tossup 15: Literature — Literature

In 1922, he became Lord Rector of St. Andrews University in Scotland. Prior to this, he recieved the 1907 Nobel Prize in Literature, and upon recieving it, became the youngest recipient of it, and the first English language recipient. With most of his work focusing on British Colonial India, identify this author whose works include Kim, Just So Stories, and The Jungle Book.	Rudyard <u>Kipling</u>
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Bonus 15: Miscellaneous — Entertainment

	ven a series of films, identify the common city where they were all rtially set.	
Α	Casino Royale; Indiana Jones and the Last Crusade; Moonraker	Venice, Italy
В	Lost in Translation, You Only Live Twice, Destroy All Monsters	<u>Tokγo</u> , Japan
С	Rocky; Unbreakable; National Treasure	Philadelphia, PA
D	Wargames, Austin Powers: The Spy Who Shagged Me, Agent Cody Banks	Seattle, WA

Tossup 16: Fine Arts — Visual Art

They actually existed near a place in France called Giverny, near the artist's home. In some of the paintings in this series, there are only a few of the titular objects, but others contain scores of them. Known for appearing to be blurry, this is because the artist painted them in his typical impressionistic style. Identify this famous series of paintings of plants by Claude Monet (mo-NAY).	Water Lillies
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Bonus 16: Math — Calculus

	nd the indefinite integrals of the following functions, without cluding constants of integration.	
Α	The natural log of x.	x times the natural log of x, minus x
В	x cubed minus 3 x squared.	x to the fourth over 4, minus x cubed
С	sine of 2 x.	negative 1/2 cosine 2 x
D	6 over x.	6 times the natural log of x (accept 6 times the natural log of the absolute value of x)

Tossup 17: Social Studies — Geography

French and Malagasy are its official languages, and even though it is very close to Africa, its people share more similarities with those of Indonesia. The fourth largest of its kind in the world, the Comoros Islands are off of its coast. Name this island across the Straits of Mozambique from Africa.	<u>Madagascar</u>
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Bonus 17: Science — Physics

	Iculate the equivalent resistance of the following combinations of sistors, in ohms.	
Α	A 2 ohm resistor is in series with a 5 ohm resistor.	<u>7</u> ohms
В	A 2 ohm resistor is in parallel with a 5 ohm resistor.	<u>10/7</u> ohms
С	A 3 ohm resistor is in series with the parallel combination of a 3 ohm resistor and a 3 ohm resistor.	<u>9/2</u> ohms (accept <u>4.5</u> ohms)
D	A 5 ohm resistor is in parallel with the series combination of a 3 ohm resistor and a 2 ohm resistor.	<u>5/2</u> ohms (accept <u>2.5</u> ohms)

Tossup 18: Science — Biology

Once called Daltonism, this condition can be detected by the Ishihara test. One form, tritanomaly (TRI-tuh-NAH-muh-lee) is not sex-linked,	
like the other varieties. The most common type, deuteranomaly (doo-	
tare-uh-NAH-muh-lee), is present in five percent of all males, and	
affects the perception of green. Name this disability that makes it	
difficult to distinguish certain colors.	

Bonus 18: Literature — Literature

Gi	ven an author's real name, supply their pseudonym.	
Α	Karen Blixen	Isak <u>Dinesen</u>
В	H. H. Munro	<u>Saki</u>
С	Mary Ann Evans	George Eliot
D	Marie-Henri Beyle	<u>Stendahl</u>

Tossup 19: Math — General

This concept was explored by Cauchy, who formalized it using the delta-epsilon definition. Though it has no bearing on what f of x equals at x equals a, it says that values of x near a cause f of x to approach a given value. Name this idea from calculus that describes how a function behaves near a certain value.	<u>Limit</u>
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Bonus 19: Fine Arts — Music

Ide	entify the following works of Pytor Tchaikovsky.	
Α	Arguably his most popular work, this work is based on the story of the Battle of Borodino, and features a carillon and cannon fire.	The 1812 Overture
В	Tchaikovsky wrote an orchestral suite for this ballet himself, including selections from Trepak and Waltz of the Flowers.	The Nutcracker
С	This work, whose nickname means emotional, was the last to be premiered in his lifetime and features a sextuple-piano marking for bassoon in the first movement.	Symphony Pathetique or Symphony No. 6 (accept Opus 74)
D	This opera, based on a Pushkin short story, puts extra emphasis on the love affair between Lisa and the degenerate gambler Herman.	The Queen of Spades

Tossup 20: Literature — Literature

One of this woman's most famous novels depicts the life and times of Jean Baptiste Lamy of New Mexico. Most of her works, however, center on strong women like Thea Kronberg and Alexandra Bergson, who appear in The Song of the Lark and O Pioneers!, and which take place in the Prairie. Name the strong female author who created Antonia Shimerda in My Antonia.	Willa Sibert <u>Cather</u>
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Bonus 20: Social Studies — World History

lde	entify these figures from Mexican history.	
Α	This man served two terms as the President of Mexico, including immediately before the Mexican Revolution.	José de la Cruz Porfirio <u>Díaz</u> Mori
В	This man led many raids throughout Mexico during the Revolution, and at one point was pursued by General John Pershing.	Pancho <u>Villa</u> (accept Doroteo <u>Arango</u> Arámbula)
С	This man, who helped overthrow the French, served five terms as President, ending in 1872.	Benito Pablo <u>Juárez</u> García
D	This revolutionary leader was eventually assassinated, but not before leading the Liberation Army of the South.	Emiliano <u>Zapata</u> Salazar

END OF MATCH

Tossup A: Social Studies — World History

Some operations undertaken in this battle include Mars and Uranus, the latter of which led to the encirclement of 250,000 Germans. Future premier Nikita Khrushchev was a commander in this battle, which took place from 1942-1943. Name this turning point on the Eastern Front fought in a city named after a Soviet leader.

Battle of <u>Stalingrad</u> (do not accept Battle of <u>Vologograd</u>)

Bonus A: Math — Algebra

Ex	press the following complex numbers in a + bi form.	
Α	e to the i pi over two power.	0 + 1 <u>i</u>
В	The quantity 2 + 3 i, over the quantity 1 + 2 i.	<u>8/5 - 1/5 i</u> (accept (8-i)/5)
С	The quantity i minus five, times the quantity i minus two.	<u>9 - 7 i</u>
D	i raised to the 300th power.	<u>1</u> + 0 i

Tossup B: Science — Earth Science

Their thickness allows plastic flow, though they also undergo basal sliding if located on top of water. As they pass, they abrade and pluck the ground below them, forming moraines and drumlins. Their fringes contain melted water, and taken together, they contain the largest supply of freshwater on Earth. Name these large blocks of ice on the ground.	Glacier
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Bonus B: Literature — Literature

	me each of these books, all of which are winners of the Newberry edal.	
Α	Four sixth-grade children compete in the New York State Academic Bowl Championship in this 1997 Medal winner.	The View From Saturday
В	In this 1968 winner by E.L. Konigsburg, two siblings run away to the Metropolitan Museum of Art in New York.	From the Mixed-Up Files of Mrs. Basil E. Frankweiler
С	This 1964 winner is a coming-of-age novel about Dave Mitchell and his adopted feline.	It's Like This, Cat
D	The 2007 winner is this Susan Patron novel, about a 10-year old growing up with her father and stepmother in California.	The Higher Power of Lucky

Tossup C: Literature — Literature

One of their more mischievous escapades saw three of its members disguise themselves as Ethiopian nobles in a successful attempt to tour the HMS Dreadnought. Lytton Strachey and Clive Bell were members, and Roger Fry's 1910 post-impressionist art exhibition is considered a group milestone. Identify this British literary and social group whose most famous members include economist John Maynard Keynes and writers E.M. Forster and Virginia Woolf.

<u>Bloomsbury</u> Group (accept equivalents)

Bonus C: Science — Chemistry

	ve the oxidation state of the oxygen atoms in each of the following mpounds.	
Α	Sodium oxide, Na2 O.	<u>-2</u>
В	Hydrogen peroxide, H2 O2.	<u>-1</u>
С	Oxygen gas, O2.	<u>0</u>
D	Iron three oxide, Fe2 O3.	<u>-2</u>

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

Find the geometric mean of the roots of the equation y equals the quantity x minus 4, quantity squared, minus 9.	<u>√7</u>
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Bonus D: Social Studies — Current Events

	entify these current members of the U.S. Senate with leadership sitions.	
A	This West Virginia Senator is the President pro tempore of the Senate.	Robert Carlyle Byrd
В	This Senator from Nevada is the current Majority leader.	Harry Mason <u>Reid</u>
С	This former Majority leader is the current Minority whip.	Chester Trent Lott Sr.
D	This New York Senator chairs the Democratic Senatorial Campaign Committee.	Charles Ellis "Chuck" Schumer

Tossup E: Miscellaneous — Sports

On March 2, 2007, he scored a goal against the Carolina Hurricanes, giving him two hundred points for his career; notable because he reached two hundred faster than any player in NHL history, breaking Wayne Gretzky's record. Accused of making a habit of faking injuries, name this young Pittsburgh Penguin phenom.	Sidney <u>Crosby</u>
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Bonus E: Fine Arts — Music

lde	entify the following musical instruments.	
A	Famous concertos were written for this instrument by Mozart and Weber, and Benny Goodman is one of the most famous jazz musicians for this instrument.	<u>Clarinet</u>
В	This double reed instrument is prominent in the largo of Dvorak's From the New World symphony and is pitched a fifth lower than the oboe.	English horn (accept cor anglais)
С	This low brass instrument, whose name is derived from the Greek for "beautiful voice," is pitched in B flat. It is traditionally smaller than the tuba or sousaphone.	<u>Euphonium</u>
D	Smaller variants of this instrument include the virginal and the spinet. It can have multiple strings per key, such as the standard eight-foot and optional four and sixteen foot pitch strings.	<u>Harpsichord</u>