

Round 5

Lilly Chavez • Brad Fischer • Natalie Howell • Clare Keenan • Mike Laudermith
Sophie Netzel • Lauren Onel • Aleija Rodriguez • Zane Smalley • Kristin Strey
Ethan Strombeck • Lana Kay Tutterow • Tyler Vaughan • Trevor Vice

Tossups

(1) **Blue mountains in the background of this painting were inspired by a window-side view from Saint-Paul, an institution near Saint-Remy de Provence [sawn reh-MEE duh proh-VONS], and overlook an elongated church** (*) steeple in an idealized village. A giant cypress tree dominates the left-hand side of this painting, opposite a strangely luminous crescent moon. For ten points, name this painting created by Vincent Van Gogh, in which bright lights swirl in a dark sky.

ANSWER: The Starry Night (accept De sterrennacht)

(2) **The 23rd Amendment concerns this city, which is subject to a 1910 law that essentially prevents the building of skyscrapers. Under the Compromise of 1790, states adopted Alexander Hamilton's (*) debt plan in exchange for the acceptance of this city. Article I of the Constitution allowed for the creation and Congressional oversight of, for ten points, what city on the Potomac River that succeeded New York and Philadelphia as capital of the United States?**

ANSWER: Washington D.C. (accept DC; accept District of Columbia)

(3) **The Navier-Stokes equations treat viscosity as the diffusion of this quantity. Greater precision in measuring position implies less precision in measuring this quantity, according to (*) Heisenberg's uncertainty principle. The average change in this quantity over time is impulse, and its time derivative is force. Unlike kinetic energy, this quantity is conserved in both elastic and inelastic collisions. For ten points, name this quantity, responsible for the recoil of a rifle, which is equal to mass times velocity.**

ANSWER: linear momentum (do not accept or prompt on "angular momentum")

(4) **The Friedman rabbit test was once used to diagnose this condition, whose abnormal types can be molar or ectopic. Amniocentesis is performed on patients with this condition that is marked by a continuous increase in (*) progesterone. In an early stage of this condition, the placenta attaches to the uterus. Morning sickness is a common symptom of, for ten points, what condition that often concludes with a woman giving birth to a baby?**

ANSWER: pregnancy (accept gestation)

(5) **In this novel, the daughter of Sister Gudule temporarily marries the playwright Pierre Gringoire [gran-WAHR] and makes money by dancing with her goat Djali ["jolly"]. A girl born with the name Agnès in this novel is briefly rescued from hanging by the (*) "Pope of Fools," who tries to reunite her with Captain Phoebus against the wishes of Archdeacon Claude Frollo. For ten points, name this novel about La Esmeralda, a girl who is switched as a baby with Quasimodo, the title deformed bell-ringer of a Paris cathedral.**

ANSWER: The Hunchback of Notre-Dame (accept Notre-Dame de Paris)

(6) **According to Joseph Smith, this biblical figure lived with her husband near Jackson County, Missouri. Her husband's first wife was the evil Lilith, and she became the mother of Seth after her son committed the (*) first murder. A serpent assured this woman, "you will not certainly die," inspiring her to take a bite from a forbidden fruit. For ten points, name this mother of Cain and wife of Adam, the first woman to appear in the Bible.**

ANSWER: Eve

(7) **Description acceptable. Structures built for this purpose include kurgans in Proto-Indo-European cultures, which involved earthworks and wooden chambers. In 1939, archaeologists in Britain discovered Sutton Hoo, a 7th century site that used a ship as the vessel for this purpose. Paris and Rome each have extensive (*) underground catacombs that serve this purpose, which may be done in a mausoleum. For ten points, name this act that may be done with a coffin or a casket.**

ANSWER: burial (accept anything related to the interment of dead bodies; accept descriptions of cemeteries or other places where burial may occur)

(8) **The narrator of this story begins by discussing the "thousand injuries" he has endured as a justification for his actions. A character in this story is insulted for being unable to distinguish the title drink from sherry. This story's narrator taunts his friend with a (*) shovel while pretending to be a mason. Montresor imprisons Fortunato behind a wall in a cellar in, for ten points, what Edgar Allan Poe short story titled for an expensive wine?**

ANSWER: The Cask of Amontillado

(9) **Leonidas Dyer tried to make this action a federal crime. This action was carried out in Marietta, Georgia against Leo Frank, who had been imprisoned for allegedly murdering Mary Phagan. Billie Holliday protested this action by popularizing the song (*) "Strange Fruit," which describes "Blood on the leaves and blood at the root" of the trees where this action was done. The Ku Klux Klan often carried out, for ten points, what type of murder that often targeted African Americans via hanging?**

ANSWER: lynching (accept word forms; prompt on partial answers, like "murder," "mob violence," or "hanging")

(10) **This concept is usually defined by the Kolmogorov axioms, although an alternative method using Cox's Theorem may be preferred by Bayesian mathematicians. According to those axioms, this concept must have a non-negative value that cannot exceed (*) one. This mathematical concept can be added together if two events are mutually exclusive. For ten points, name this mathematical concept that describes the likelihood of an event, often as a percentage.**

ANSWER: probability (do not accept "odds," "chance," or other possible synonyms)

(11) **This state's Sawatch Mountains are home to the Collegiate Peaks, including Mount Harvard, Mount Yale, and Mount Oxford. This state's 58 "fourteeners," or mountains with a peak over 14,000 feet, include Mount Elbert, the tallest point in this state, and a mountain named for a man who failed to climb it, (*) Pikes Peak. Greeley, Fort Collins, and Boulder are cities in, for ten points, what state in the Rocky Mountains that is home to a US Mint in Denver?**

ANSWER: Colorado

(12) **The protagonist of this musical declares “There is power in me yet / My race is not yet run!” in the “Confrontation” scene. A theme in this musical is sung as “come to me” in a young mother’s death scene, and returns as “come with me” while (*) Eponine [EH-poh-noon] and Fantine [fon-teen] escort the protagonist to heaven. “One Day More” closes Act One of, for ten points, what musical about Jean Valjean’s [zhahn val-zhahn’s] redemption, based on the Victor Hugo novel of the same name?**

ANSWER: Les Miserables (accept Les Mis)

(13) **Piobert’s law describes the behavior of this substance, whose modern double-base form consists mainly of nitrocellulose. By the early twentieth century, cordite had replaced this substance in most countries, and (*) DuPont was founded as a manufacturer of it. Smokeless types of this substance are contrasted with the traditional black form, made from a mixture of saltpeter, charcoal, and sulfur. For ten points, name this explosive substance used to propel cannonballs and bullets.**

ANSWER: gunpowder (accept smokeless powder before it is mentioned)

(14) **This poet was memorialized in the poem *Adonais* when he died at age 25, shortly after the publication of a poem that declares “thou wast not born for death.” In another poem, this Romantic poet addresses a (*) “still unravish’d bride of quietness” and imagines the history of the title piece of pottery. One of this poet’s odes declares that “Beauty is truth, truth beauty.” For ten points, name this poet who wrote “Ode to a Nightingale” and “Ode on a Grecian Urn.”**

ANSWER: John Keats

(15) **Robert Peel controversially asked this ruler to dismiss attendants of the Bedchamber. This leader was the first to permanently live in Buckingham Palace, and had a famously positive relationship with the only Jewish prime minister of (*) her country, Benjamin Disraeli. The Crystal Palace in Hyde Park was organized by this ruler’s husband, Prince Albert. For ten points, name this “Empress of India,” a 19th-century queen of England.**

ANSWER: Queen Victoria

(16) **In a story from this civilization, Hun-Came and Vucub-Came play a ballgame against Xbalanque [shah-blon-kay] and Hunahpu [hoo-nah-poo]. Stories from this civilization are collected in the (*) *Popul Vuh*, which also tells how humans were created out of maize. The Hero Twins journey to the underworld Xibalba [shee-ball-bah] in a story form, for ten points, what Mesoamerican civilization, whose Long Count calendar ended in 2012?**

ANSWER: Mayan Civilization (accept K’iche’ people)

(17) **A small one of these objects is given by Cio-Cio San [cho cho sahn] to her son just before she commits suicide in *Madame Butterfly*. A piece of music named for this object was used as an emergency signal in the 1944 Hartford (*) circus fire. The melody of the drinking song “To Anacreon in Heaven” is the setting of a poem about this object, which is praised “Forever” by a John Philip Sousa march. For ten points, name this object, the subject of “The Star Spangled Banner.”**

ANSWER: American flag (accept The Star Spangled Banner before it is read; accept The Stars and Stripes Forever; prompt on partial answers, like “flag”)

(18) **While working in this region, Leonid Rogozov gave himself an emergency appendectomy. Air New Zealand Flight 901, a sightseeing flight, crashed into the side of this region's Mount Erebus in 1979. This region is divided into sectors controlled by countries like (*) Chile, Australia, and the United States. Ernest Shackleton, Robert Scott, Roald Amundsen used sled dogs and icebreaking ships to explore, for ten points, what nearly uninhabited continent, the home of the South Pole?**

ANSWER: Antarctica (accept Novolazarevskaya Station before "Air New Zealand" is read; anti-prompt on "South Pole" by asking "can you be less specific?")

(19) **The Crepe one of these structures is darker than its neighbors, and the re-aggregation of another may have produced Tethys. The small moon Pan is located within the Encke gap in these structures, whose F member's spiral shape was detected by the (*) Cassini probe. Christiaan Huygens [HOY-ghens] determined the disk arrangement of these structures, which may be the remains of a second Titan-sized moon. For ten points, name these structures made of rock and ice that surround the sixth planet.**

ANSWER: rings of Saturn

(20) **In this novel, Tom Loker changes his outlook on life after being healed at a Quaker settlement at the request of Eliza. George Shelby arrives too late to stop this novel's title man from dying on the order of (*) Simon Legree, who purchases the protagonist after the deaths of Eva St Clare and her father. For ten points, name this novel about the struggles of slaves like George, Eliza, and the quiet title man, written by Harriet Beecher Stowe.**

ANSWER: Uncle Tom's Cabin; or, Life Among the Lowly

Bonuses

(1) As of 2018, the United Nations has declared this status for only two illnesses: rinderpest and smallpox. For ten points each,

Identify this status in which a pathogen can no longer be found in the host population and no new cases of the illness are reported. A decline in childhood vaccination has prevented measles from reaching this status in the United States.

ANSWER: **eradication** (accept word forms; prompt on “elimination;” do not accept or prompt on “extinct”)

With only small pockets surviving in Africa and South Asia, this disease that can cause paralysis in children may be eradicated in the next decade. The first widely available vaccine against this disease was developed by Jonas Salk in the 1950s.

ANSWER: **poliomyelitis**

Much of the funding for global disease eradication comes from a foundation started by this second-richest man in the world and his wife Melinda. This Microsoft co-founder has committed to ending malaria by the year 2040.

ANSWER: Bill **Gates**

(2) This former 30th overall pick recently created a rift in his team’s front office due to his disputes with Karl Anthony-Towns and Andrew Wiggins. For ten points each,

Name this shooting guard for the Minnesota Timberwolves who, during the 2018 off-season, requested a trade.

ANSWER: Jimmy **Butler**

Some have claimed that the Timberwolves are trying to become this team; they acquired Butler from this team in 2017, are coached by their former coach Tom Thibodeau [tih-boh-doh], and have recently signed Taj Gibson and Derrick Rose. Unfortunately for Minnesota, they can’t sign Michael Jordan, who helped this team win six titles in the ‘90s.

ANSWER: **Chicago Bulls** (accept either or both names)

The Timberwolves may try to be the Bulls, but it’ll be tough to escape their Minnesota roots. Like baseball’s Twins, the Timberwolves’ home arena is named for this Minnesota retail giant and rival of Walmart.

ANSWER: **Target**

(3) Answer the following about short poetry from Asia, for ten points each.

Omar Khayyam wrote the *Rubaiyat*, a collection of quatrains, in this language. This was the primary language of a civilization that long held power in what is now Iran.

ANSWER: **Persian** (accept **Persia**)

This Tang-dynasty Chinese poet was one of the Immortals of the Wine Cup, and legendarily died while trying to embrace the reflection of the moon in the Yangtze River.

ANSWER: **Li** Po (accept **Li** Bo; accept **Li** Bai; accept **Li** Pai; accept **Li** Tai-po; accept **Li** Tai-pai)

Favored by Matsuo Basho, this form of short, Japanese poetry typically consists of three lines of 5-7-5 on **[ohn]**, or syllables, and includes a “cutting word” to contrast its images or themes.

ANSWER: **haiku**

(4) Answer some questions about female non-Olympian deities, for ten points each.

According to some myths, this goddess of the hearth gave up her seat as an Olympian to Dionysus so she could tend to the fire at Olympus.

ANSWER: **Hestia** (accept **Vesta**)

Hestia is a child of this Titaness and Kronos. When Kronos began eating his children, this Titaness gave Kronos a stone to eat in place of Zeus.

ANSWER: **Rhea**

This earth goddess was the mother of the Titans with Uranus. She gave Cronus the sickle that he used to castrate Uranus.

ANSWER: **Gaia** (accept **Terra**)

(5) This event began in October 1934 with an escape from Jiangxi **[jee-ahng-shee]** and a move to Zunyi, where the Politburo gathered to discuss how to avoid Chiang Kai-shek’s Nationalists. For ten points each,

Name this year-long retreat by the Red Army through China.

ANSWER: **Long March** (accept **Chang Zheng**)

This Communist general led the Red Army during the Long March, which solidified his power. This man served as Chairman of the Chinese Communist Party for 33 years until his 1976 death.

ANSWER: **Mao** Zedong

The Chinese Civil War resumed after World War II, and in 1949, Chiang Kai-shek’s Nationalists were forced to retreat to this island.

ANSWER: **Taiwan** (accept **Formosa**)

(6) Pitchblende, one of these minerals, was separated by the Curies, allowing the discovery of radium and polonium. For ten points each,

Name this type of mineral that is mined for the valuable metals it contains. Hematite is one such mineral source for iron.

ANSWER: ore

Because of its low melting point, this metal with chemical symbol Pb [P-B] is relatively easy to extract from ores. It is used to manufacture acid batteries and bullets.

ANSWER: lead

Once mined by the ancient Egyptians to make the dark eyeliner kohl, this ore is the major source of lead.

ANSWER: galena

(7) A character in this novel attends a Solidarity Service at which he sings “Orgy-porgy, Ford and fun.” For ten points each,

Name this dystopian novel by Aldous Huxley, in which people like Lenina Crowne and Bernard Marx are divided into Alpha and Beta castes before birth.

ANSWER: Brave New World

The Solidarity Services in *Brave New World* are fueled by this mind-altering drug intended to provide peace and tranquility to people like the addict Linda.

ANSWER: soma

This man, Linda’s son, is appalled by the recreational use of soma. This man is removed from a Native American reservation, and hangs himself in a lighthouse after being made a spectacle of.

ANSWER: John the Savage

(8) This country includes Corfu in the Ionian Islands, Hydra and Aegina in the Saronic Islands, and Naxos in the Cyclades Islands. For ten points each,

Name this country that controls several hundred islands in the Aegean Sea, including the Dodecanese [doh-DEH-kah-NEEZ] near Turkey.

ANSWER: Greece (accept Hellenic Republic or Elliniki Dimokratía; accept Elláda)

The ancient Minoan civilization was based on this island, the largest controlled by Greece.

ANSWER: Crete

The largest island in the Dodecanese group is this island, which was once ruled by the Knights Hospitaller. A Wonder of the Ancient World was built on this island and stood until 226 BCE.

ANSWER: Rhodes (accept Colossus of Rhodes, but do not accept or prompt on Colossus alone)

(9) In 1973, members of the American Indian Movement led an armed occupation of this town as a protest against federal treatment of Native Americans. For ten points each,

Name this small town where, 83 years earlier, Spotted Elk and over one hundred Lakota people were massacred by the 7th Cavalry.

ANSWER: Wounded Knee

Wounded Knee is a town in the Pine Ridge Reservation, which is found in this US state.

ANSWER: South Dakota

Roughly two dozen US soldiers were given this award for their conduct in the Wounded Knee Massacre. Although Congress resolved to condemn the massacre in 1990, these awards have not been revoked. This is the US military's highest personal decoration.

ANSWER: Congressional Medal of Honor

(10) For precision machining, engineers can use a hollow core fiber laser or a cutter that shoots jets of this extremely high-temperature substance. For ten points each,

Name this fourth state of matter, an ionized gas formed by lightning and high intensity lasers. Stars are also composed of this substance.

ANSWER: plasma

Lasers made with hollow core fibers are filled with a low pressure noble gas, such as this element with atomic number eighteen. This gas makes up 0.9% of the earth's atmosphere, and lamps made with it have a purple glow.

ANSWER: argon (accept Ar)

This question's author uses a hollow core fiber laser to perform an ultrafast type of this technique, in which elements are identified by the wavelengths of light they absorb or emit. The infrared form of this technique uses "fingerprint" regions to identify compounds.

ANSWER: atomic spectroscopy

(11) In one opera, this character rapidly repeats his own name in the aria "Largo al Factotum." For ten points each,

Name this character who aids Count Almaviva in *The Barber of Seville* and is married in a Mozart opera.

ANSWER: Figaro

This composer of the *Barber of Seville* also wrote the operas *The Thieving Magpie* and *William Tell*. Today, he is best known for the overtures to those works.

ANSWER: Gioachino Antonio Rossini

Both *The Barber of Seville* and *The Marriage of Figaro* are in this language, the native language of Rossini. Most musical markings, including piano and forte, are written in this language.

ANSWER: Italian language (accept lingua italiana; accept Italiano)

(12) Answer these questions about the use of the Greek letter *mu* [mew] in physics, for ten points each.

One use of *mu* is as the symbol for this quantity, the resistance of a fluid to flowing. This quantity is more than six thousand times greater for mayonnaise than for water.

ANSWER: dynamic viscosity

Mu also represents the coefficient of this force that resists the motion of an object as it travels along a surface. To push a box up a ramp, you must overcome the “static” form of this force.

ANSWER: friction

Because the coefficient of friction can only be determined by experiment, instead of calculated from a formula, *mu* is this type of measurement. This term can refer to any knowledge gained by direct observation or experience.

ANSWER: empirical

(13) In this religion, evil souls who attempt to reach the underworld encounter an ever-narrowing bridge and the demon Vizaresh. For ten points each,

Name this monotheistic religion that grew out of the teachings of a Persian prophet. In this religion, Angra Mainyu attempts to lure the followers of Ahura Mazda into committing sin.

ANSWER: Zoroastrianism (accept Mazdayasna; accept Zarathustrianism)

Zoroastrians commonly pray in temples dedicated to this substance. This substance was, along with water, one of the last primordial elements to be created.

ANSWER: fire (accept atar)

The Zoroastrian version of this ritual involves four days of activities, including the planting of a twig to ensure fertility. In another part of this ritual, a man passes an egg around his head three times and sprinkles a woman with rice.

ANSWER: wedding (accept marriage)

(14) This story’s narrator is sent to ask Simon Wheeler about Leonidas W. Smiley. For ten points each,

Name this story about the supposedly remarkable amphibian Dan’l Webster, who fails to win Jim Smiley’s bet for him when an opponent pours lead shot down his throat.

ANSWER: The Jumping Frog (accept The Celebrated Jumping Frog of Calaveras County; accept The Notorious Jumping Frog of Calaveras County; accept Jim Smiley and His Jumping Frog)

The author of “The Celebrated Jumping Frog of Calaveras County” also created this character, who lives with his Aunt Polly, cousin Mary, and brother Sid in St Petersburg, Missouri.

ANSWER: Thomas “Tom” Sawyer (accept either name)

“The Celebrated Jumping Frog of Calaveras County” and *The Adventures of Tom Sawyer* were written by this American author.

ANSWER: Mark Twain (accept Samuel Langhorne Clemens)

(15) This man made a famous speech stating that the great questions of the day would be decided by blood and iron. For ten points each,

Name this 19th century chancellor who discussed how to unify Germany in that speech.

ANSWER: Otto von **Bismarck**

Bismarck was appointed Prime Minister of this German predecessor state in 1862. This kingdom captured Napoleon III when it fought France in an 1870 war.

ANSWER: **Prussia**

In 1862, during a crisis about the re-organization of Prussia's military, this man appointed Bismarck Prime Minister. This man served as the first Kaiser of a unified Germany, and his grandson of the same name served as Kaiser during World War I.

ANSWER: **Wilhelm I** (accept **William I**; prompt on Wilhelm or William)

(16) A function can be described by this adjective when considered at points not in its domain, but this adjective is most commonly used to describe situations involving an impossible division. For ten points each,

Give this adjective that describes expressions like 1 over 0, which cannot be represented by a real number.

ANSWER: **undefined**

The function "f of x equals one over x" is not defined at x equals zero, and instead has this graphical feature along the y-axis. The graph of one over x approaches, but never touches, this vertical feature of the graph.

ANSWER: vertical **asymptote**

Of the six basic trigonometric functions, two of them - sine and cosine - are defined along the entire real number line. Two of them are not defined at x equals zero; name either of those functions.

ANSWER: **cotangent** of x or **cosecant** of x (accept **cot** of x; accept **csc** of x; do not accept or prompt on tangent or secant alone)

(17) This architect's Robie House exemplifies his Prairie School style. For ten points each,

Name this Midwestern architect who designed many homes from his studio Taliesin [tah-lee-ess-in].

ANSWER: Frank Lloyd **Wright** (accept Frank Lincoln **Wright**)

This Frank Lloyd Wright building facing Central Park is designed so that visitors view this museum's collection of modern art while descending a continuous, spiral ramp around its central rotunda.

ANSWER: Solomon R. **Guggenheim** Museum

Another Guggenheim Museum in Bilbao was designed by this stainless-steel-loving architect, who also designed the Prague Dancing House and Millennium Park's Pritzker Pavilion.

ANSWER: Frank Owen **Gehry** (accept Frank Owen **Goldenberg**)

(18) This character is imprisoned by a race of tiny people on the island of Lilliput. For ten points each,

Name this traveller who is sold to the Queen of Brobdingnag, dropped into the ocean by a giant eagle, and rescued by the flying island of Laputa.

ANSWER: Lemuel Gulliver (accept either name; accept Gulliver's Travels)

Gulliver's Travels is a satirical work by this Irish author who also wrote *A Tale of a Tub* and *Drapier's Letters*.

ANSWER: Jonathan Swift

Swift also wrote this satirical essay, which proposes that Irish Catholics should eat and sell their babies as food to alleviate their economic hardship during the Irish Potato Famine.

ANSWER: A **Modest Proposal** For preventing the Children of Poor People From being a Burthen to Their Parents or Country, and For making them Beneficial to the Publick

(19) This man declared "John Marshall has made his decision, now let him enforce it!" after hearing of the Supreme Court's decision in *Worcester v. Georgia*. For ten points each,

Name this US President whose fierce anti-Native sentiment led many Native Americans to be forced out of their ancestral lands and onto the Trail of Tears.

ANSWER: Andrew Jackson

Jackson was Major General at this battle during the War of 1812, which actually took place twelve days after the Treaty of Ghent ended the war.

ANSWER: Battle of New Orleans

This Native American tribe fought against the United States on three separate occasions after Andrew Jackson invaded their Florida territories following the War of 1812.

ANSWER: Seminoles

(20) Scholars within this field may focus on pragmatics, in which the context of a message is studied, on semantics, in which the meaning of words or symbols are studied, and/or on syntax, in which the structure of sentences are studied. For ten points each,

Name this social science, the study of language.

ANSWER: linguistics

Linguists often study the historical development of a language, from a simplified pidgin stage, to this more stable stage of a mixed language that can be learned natively by children, and further into varieties, dialects, and languages. This term is also used to describe racially-mixed ethnic groups, such as descendants of French settlers in Louisiana.

ANSWER: creole (accept creole language; accept Creole people)

Linguists have not come to a complete consensus on whether this variety of English evolved from an African creole or an English creole. Linguists do not generally use the controversial term Ebonics for this variety.

ANSWER: African-American Vernacular English (accept AAVE; accept Black Vernacular English)