

## Round 11

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) **A character in this poem hears a “dismal universal hiss” as he and his followers transform into snakes when he returns to Pandemonium from Earth. The villain of this epic poem infamously declares that he would rather rule in (\*) Hell than serve in Heaven.** In this poem’s introduction, the author explains that his purpose is to “justify the ways of God to men.” For ten points, name this epic poem about the rebellion of Satan and the fall of Adam and Eve, written by John Milton.

ANSWER: Paradise Lost

(2) **Familial high cholesterol is a failure of this process with regard to LDL, and plants use this method to load sap into phloem [“flow”-ehm]. The “bulk” form of it includes phagocytosis [fay-goh-sye-toh-sis], and nerve impulse resetting requires (\*) sodium-potassium pumps doing this.** The movement of hydrogen ions against their concentration gradient is an example of this process that can generate the ATP energy needed for all types of this to occur. For ten points, name this process used to move substances across a membrane from low concentration to high.

ANSWER: active transport (accept receptor-mediated endocytosis until “sap” is read)

(3) **Harvard and Yale traveled to this state’s Lake Winnepesaukee for the first American intercollegiate sporting event in 1852. The Brooklyn Dodgers’ minor league team in this state’s city of Nashua was the first American team to integrate. The largest (\*) Manchester in the US is this state’s largest city and its only city over 100,000 people.** The New England state with the smallest Atlantic coastline is, for ten points, what only US state that borders Maine, a state whose capital is Concord?

ANSWER: New Hampshire

(4) **Simeon realized he could die in peace while under the influence of this entity, and after Zechariah named John the Baptist, he predicted the coming of Jesus with the power of this entity. This entity appeared as (\*) “tongues of fire” and caused the disciples to speak in strange languages during Pentacost, and descended to Jesus “like a dove” during his baptism.** For ten points, name this entity that joins the Father and the Son in the Christian Trinity.

ANSWER: Holy Spirit (accept Holy Ghost)

(5) **During this war, a scandal involving the poor quality of the “embalmed” beef given to soldiers was potentially responsible for the passing of the Pure Food and Drug Act. Support for this war was generated by William (\*) Randolph Hearst’s yellow journalism, which blamed the sinking of the USS *Maine* in Havana Harbor on the opposing side. Teddy Roosevelt led his Rough Riders during, for ten points, what war against a European power?**

ANSWER: Spanish-American War

(6) **For an electric dipole, this net quantity is zero when aligned with the field. The precession of a gyroscope’s axis is induced by this external quantity. Power is the dot product of this quantity and (\*) angular velocity, and most direct calculations of this quantity require the length of the lever arm. To avoid over-tightening nuts and bolts, mechanics will use a wrench that measures this quantity. For ten points, name this quantity experienced as a twist on a object, the rotational equivalent of force.**

ANSWER: torque

(7) **In this work, White Dragon Horse joins a group of heroes after being exiled for causing a fire. In this work, a character declares himself the “Great Sage, Equal of Heaven,” eats the peaches of immortality, and is imprisoned under a mountain. The monkey (\*) Sun Wukong wreaks havoc in, for ten points, what 16th century novel by Wu Cheng’en about a monk who, in order to retrieve Buddhist scripture, travels from China to India?**

ANSWER: Journey to the West

(8) **Performances of this piece sometimes include a chorus singing “Slay him! Slay him!” This piece begins with two horns playing an F sharp, after which pizzicato cellos play the main theme. This piece, which is in a suite with “The Death of Ase” and (\*) “Morning Mood,” uses a rising theme to depict a character facing the leader of trolls in an underground room. For ten points, name this piece from *Peer Gynt* by Edvard Grieg, famous for its acceleration and building of tension.**

ANSWER: In the Hall of the Mountain King (accept I Dovregubbens hall)

(9) **While fighting in this war, Armin Tamzarian steals the identity of Seymour Skinner in *The Simpsons*. After returning home from this war, Frank Castle’s family is murdered by the Mafia, which causes him to become The Punisher. The song “Fortunate Son” plays as (\*) helicopters transport Bubba Blue and Forrest Gump into this war. The 2017 film *The Post* details the release of the Pentagon Papers during, for ten points, what war that the United States escalated in the 1960s and 70s?**

ANSWER: Vietnam War

(10) **This country was led by the “Lion of Midnight” at Breitenfeld, where it won a massive victory over Count Tilly and the Catholic League. This country, which fought on the Protestant side in the (\*) Thirty Years’ War, was crushed at Poltava by Peter the Great of Russia to lose the Great Northern War. Gustavus Adolphus was a general for, for ten points, what Scandinavian country that was ruled by Charles XII [12] from Stockholm?**

ANSWER: Sweden

(11) **In mathematical induction, the “ $n$ ” case is assumed with the aim of proving *this* case. If two dice are each numbered from one to  $n$ , then the sum of the average roll is this expression. When this expression is squared, the result is (\*)  $n$  squared plus two  $n$  plus one. The expression “ $n$  squared minus one” is equal to this polynomial times a similar expression with a minus sign. For ten points, give this binomial that evaluates to five when  $n$  is four.**

ANSWER:  **$n$  plus 1** (accept descriptions of being **one larger** than  $n$ ; accept other variable names in place of  $n$ , such as  **$x$  plus 1**)

(12) **In this country’s folklore, the sisters Badb [bayv], Machia, and Neain made up the crow war goddess, the Morrigan. In a myth from this country, the forces of Queen Medb [Queen MAYV] tried to steal a prized bull, but were defeated by (\*) Cu Chulainn [koo KULL-ain]. This island was legendarily home to grieving female spirits that loudly wailed in anguish, the Banshees, and to creatures who gave out wishes at the end of a rainbow. For ten points, name this island, home to the mythical Leprechauns.**

ANSWER: **Ireland**

(13) **This thinker’s early work *The Birth of Tragedy* discusses the Apollonian and Dionysian elements in Greek tragedy. This thinker’s work *On the Genealogy of Morality* accuses Christianity of encouraging (\*) weakness, and his criticism continued in *The Antichrist*. A Persian prophet describes the Ubermensch in *Thus Spoke Zarathustra* by, for ten points, what German philosopher whose work was embraced by the Nazis?**

ANSWER: Friedrich **Nietzsche**

(14) **This scientist led the first fusion experiment that generated tritium, and both the atomic battery and Geiger counter were invented in this man’s labs. He co-discovered transmutation and oversaw its first successful experiment, turning (\*) nitrogen into oxygen. He coined the terms “gamma ray” and “beta particle,” but his most significant work involved firing alpha particles at a thin target. For ten points, name this scientist who created the planetary model of the atom after discovering the nucleus with the gold foil experiment.**

ANSWER: Ernest **Rutherford**

(15) **A character in this novel buys Egyptian cotton, coats it in chocolate, and tries to serve in the mess hall as “cotton candy.” In this novel, Doc Daneeka performs psychological evaluations on a squadron that includes (\*) Major Major Major and Milo Minderbinder, and determines that anyone sane is too scared to fly missions, but must fly because they are sane. Yossarian tries to avoid his duties as a World War II pilot in, for ten points, what novel by Joseph Heller?**

ANSWER: **Catch-22**

(16) **In 1985, a helicopter from this city’s police department dropped a bomb on the headquarters of MOVE; this city’s fire department let the ensuing blaze destroy 65 other homes. The Battle of Germantown was fought in what is now this city. This city’s central grid, between the (\*) Schuylkill [skool-ke] and Delaware Rivers, is home to a US Mint, Independence Hall, and the Liberty Bell. For ten points, name this temporary national capital, the largest city in Pennsylvania.**

ANSWER: **Philadelphia**

(17) **This artist depicted a white skyscraper between two black skyscrapers in *City Night* and painted a nighttime view of the Radiator Building. This artist's massive mural *Sky Above Clouds* was created at Ghost Ranch in (\*) New Mexico. Morning glories and jack-in-the-pulpits are among the common subjects painted by, for ten points, what American artist, known for her close-up paintings of flowers?**

ANSWER: Georgia Totto O'Keeffe

(18) **For eight centuries, the Wieliczka Mine [VEE-ah-LEECH-kah Mine] in Poland supplied this substance to Europe, and by 2030, half of Vietnam's farmland may be ruined by an intrusion of it. Domes of this substance are often drilled to access trapped oil. (\*) Halite is the mineral form of this substance found in large amounts in both the Bonneville Flats and Dead Sea. For ten points, name this substance with an average concentration of 3.5% in seawater, whose chemical name is sodium chloride.**

ANSWER: salt (accept NaCl or sodium chloride before "sodium chloride" is read)

(19) **A woman in this novel is struck deaf while protecting her "Ladybird," and flees with Jerry Cruncher to escape mass executions. After Gaspard's daughter is run over by a carriage in this novel, he murders the Marquis (\*) Saint Evrémone, completing a part of the vengeance longed for by Madame Defarge. Out of love for Lucie Manette, Sydney Carton takes the place of Charles Darnay at the guillotine in this novel. For ten points, name this novel by Charles Dickens that tells a story set in London and Paris.**

ANSWER: A Tale of Two Cities

(20) **Despite the Gleneagles Agreement condemning this country, their Springboks rugby team were allowed to tour New Zealand and the United States in 1981. This country's Prime Minister Hendrik Verwoerd [feh-voort] banned political parties like the (\*) ANC, or the African National Congress, which opposed his expansion of racial segregation. For ten points, name this country where, in 1994, Nelson Mandela became President.**

ANSWER: Republic of South Africa

## Bonuses

(1) Answer these questions about the chemistry that occurs in an electrolytic cell, for ten points each.

The cell can be modeled as two half-reactions: a reduction that occurs at the cathode, and an oxidation that occurs at this positive electrode.

ANSWER: **anode**

The reaction can be described mathematically by this scientist's law of electrolysis. This man's law of induction is one of Maxwell's equations, and his namesake constant is the total charge of one mole of electrons.

ANSWER: Michael **Faraday**

One common electrolytic cell is the rechargeable battery using this lightest alkali metal with symbol Li.

ANSWER: **lithium**

(2) This religion holds that the Buddha, Mohammad, and Jesus are all manifestations of a single god. For ten points each,

Name this off-shoot of Islam founded by the Báb. This religion is led by a ruling body called the Universal House of Justice, and divides a year into nineteen months of nineteen days each.

ANSWER: **Baha'i** Faith

Followers of Baha'i believe that neither hell nor this pleasant afterlife have physical locations. Rather, they believe that this location is a spiritual state especially near to God.

ANSWER: **heaven**

Adult Baha'is are required to perform an "obligatory" form of this action once daily while facing the shrine of Bahá'u'lláh, who wrote the standard text for these religious actions.

ANSWER: **prayer**

(3) For ten points each, name the following South American countries based on their recent political issues.

This country's Constitution prohibits Presidential re-election, and has thus alternated between Sebastian Pinera and Michelle Bachelet as leaders since 2006. The President of this country is based in La Moneda Palace in Santiago.

ANSWER: **Chile**

This country's state-owned oil company was involved in billions of dollars of bribes, leading to the imprisonment of former President Lula da Silva and impeachment of then-President Dilma Rousseff.

ANSWER: **Brazil**

In 2018, this country's government bribed voters with food to vote for incumbent President Nicolas Maduro, who has overseen its worst-ever economic crisis.

ANSWER: **Venezuela**

(4) Give the following about the geometry of soccer balls, for ten points each.

A soccer ball has 32 sides. Twelve are pentagons and 20 are this polygon, which has one more side.

ANSWER: hexagons (accept six-gons)

A soccer ball is a truncated version of this Platonic solid, which has 20 triangular sides.

ANSWER: (truncated) icosahedron

The Euler [oy-ler] characteristic of a soccer ball is this value, as it is for any polyhedron.

ANSWER: 2

(5) Lorraine Hansberry used a line from this poem to title her play *A Raisin in the Sun*. For ten points each,

Identify this poem, named for a New York City neighborhood, which asks “What happens to a dream deferred? / Does it dry up / like a raisin in the sun?”

ANSWER: Harlem

“Harlem” is a poem by this American author of the novel *Not Without Laughter* and poems like “The Weary Blues.”

ANSWER: Langston Hughes (accept James Mercer Langston Hughes)

Hughes also wrote a poem titled “The Negro Speaks of” these objects. The poem repeats the mantra “my soul has grown deep like” these things, and describes the Nile and “the singing of the Mississippi.”

ANSWER: rivers (accept The Negro Speaks of Rivers)

(6) In 2003, it was discovered that seven of these people existed in Germany as a result of secret affairs in the 1950s and 60s. For ten points each,

Name this type of person. Bruno Hauptmann was executed for committing the “crime of the century” after kidnapping one of these people at age 20 months in March 1932.

ANSWER: Lindbergh baby (accept descriptions of the children of Charles Lindbergh)

Charles Lindbergh became one of the most famous people in the world by flying this airplane across the Atlantic Ocean without a co-pilot or stopping.

ANSWER: The Spirit of St. Louis

Despite the fact that kidnapping wasn’t a federal crime in 1932, this US President sent federal investigators to help.

ANSWER: Herbert Hoover

(7) Yokoyama Taikan painted this landmark above a sea of clouds against a yellow sky. For ten points each,

Name this national landmark of Japan that appears in many paintings and ukiyo-e woodblock prints. Its tall, snowy peak allowed one artist to depict *Thirty-Six Views of this mountain*. Its tall peak and wide visibility allowed one artists to create 36 different views of it.

ANSWER: Mount **Fuji** (accept **Fuji-yama**; accept **Fujisan**)

This woodblock print, one of the *Thirty-Six Views of Mount Fuji*, shows the mountain in the distant background, behind three fishing boats struggling to overcome the title phenomenon.

ANSWER: The **Great Wave** off Kanagawa (accept **Kanagawa-oki nami ura** or **Under the Wave off Kanagawa**)

This Japanese artist created *The Great Wave off Kanagawa* as part of the series *Thirty-Six Views of Mt. Fuji*.

ANSWER: **Hokusai** Katsushika (accept Katsushika **Hokusai**)

(8) George Washington issued the Proclamation of Neutrality regarding U.S. involvement between England and this country. For ten points each,

Name this country, which assisted the Americans in their revolution before undergoing its own revolution starting in 1789.

ANSWER: **France**

The French Revolution was started after the firing of Jacques Necker and the storming of this structure, a prison fortress in Paris.

ANSWER: the **Bastille** Saint-Antoine

After the rise of Napoleon, American relations with France relaxed, and the Louisiana Purchase was negotiated with Napoleon against the wishes of this French foreign minister. This diplomat was crucial in France's embassy to the Congress of Vienna in 1814.

ANSWER: Charles Maruice de **Talleyrand**-Périgord

(9) In this poem, a sociopath tells a representative of his future wife just what will happen if she dares to enjoy sunsets. For ten points each,

Name this poem, in which a cruel duke explains that he had his most recent wife killed because she had a heart "too soon made glad," and was just as pleased by a sunset as she was by the duke's "gift of a nine-hundred-years-old name."

ANSWER: **My Last Duchess**

In "My Last Duchess" the duke describes his former wife after pulling back a curtain to reveal one of these objects, a depiction of the duchess created by Fra Pandalf.

ANSWER: her **portrait** (accept **painting**)

"My Last Duchess" is by this English poet, who also wrote "Porphyria's Lover," *The Ring and the Book*, and poems for his wife, Elizabeth Barrett, who was also a poet.

ANSWER: Robert **Browning**

(10) This man's second law states that a line connecting a planet to the Sun will sweep out equal areas in equal intervals of time. For ten points each,

Name this assistant of Tycho Brahe who proposed the laws of planetary motion. His first law describes the path of each planet around the Sun as an ellipse.

ANSWER: Johannes Kepler

Kepler's second law works because orbiting bodies speed up as they approach this closest point to the Sun along their path. At this point, the Earth is about 91.4 million miles from the Sun.

ANSWER: perihelion

The final law of planetary motion states that the square of a planet's orbital period is directly proportional to this power of its average distance from the Sun. Taking this power of a planet's radius is necessary to find its volume.

ANSWER: third power (accept 3; accept cube)

(11) Despite being far south of Moscow or the Scandinavian capital cities, this Asian city is the coldest national capital in the world. For ten points each,

Name this city, whose cold climate stems from its position hundreds of miles from the nearest sea, its high altitude in the Great Steppe, and a consistent high pressure zone in nearby Siberia.

ANSWER: Ulaanbaatar (accept Ulan Bator)

Ulaanbaator [oo-lahn-bah-tohr] is the capital of this Asian country, which is landlocked between Russia and China.

ANSWER: Mongolia

This large Asian desert covers much of northern China and southern Mongolia. The Tibetan Plateau's rain shadow creates this desert, where archaeologists have found significant deposits of dinosaur eggs.

ANSWER: Gobi Desert

(12) Answer these questions about the phases of mitosis in animal cells, for ten points each.

Mitosis begins with this phase, in which centrosomes move to opposite ends of the cell and DNA strands condense into visible chromosomes.

ANSWER: prophase

During prophase, the centrosomes help organize the building of this microtubule structure that attaches to each centromere. This structure later pulls the daughter chromosomes apart during anaphase.

ANSWER: mitotic spindle apparatus

Often happening at the same time as telophase, this process divides the cytoplasm and organelles, resulting in two separate daughter cells.

ANSWER: cytokinesis



(13) Answer the following about the musical history of Tennessee, for ten points each.

This city on the Mississippi River is home to Beale Street, an epicenter of blues music, as well as Elvis Presley's estate of Graceland.

ANSWER: **Memphis**

This country-pop star of "Bad Blood" and "Delicate" moved to Nashville as a teenager. In October 2018, made news with an Instagram post campaigning for Tennessee politicians.

ANSWER: Taylor **Swift**

Nashville's Ryman Auditorium and a namesake concert hall are co-homes of this weekly country music show, which is the longest-running radio broadcast in American history.

ANSWER: **Grand Ole Opry** (prompt on "(the) Opry")

(14) Jomo Kenyatta was a leader of the militant group that headed this movement. For ten points each,

Name this violent 1950s movement, a rebellion of the Kikuyu people against their European colonizers.

ANSWER: **Mau Mau** Rebellion

The Mau Mau Rebellion took place in this African country, the home of the Maasai people. Its capital is Nairobi.

ANSWER: **Kenya**

The Mau Mau Rebellion resulted from tensions between Kenyan nationalists and this country, which held Kenya as a colony at the time. This country's monarch, Elizabeth II, was in Kenya on her way to Australia when her father died, making her queen.

ANSWER: **United Kingdom** of Great Britain and Northern Ireland (accept **UK**; accept Great **Britain**; prompt on "England")

(15) People in this region followed the *kapu* ritual code until 1819, when King Kamehameha II [kah-may-hah-may-hah the second] ended human sacrifices and began eating meals with his mother and the women of his court. For ten points each,

Name this Pacific island chain where 19th-century Christian missionaries banned the "pagan" ritual of hula dancing.

ANSWER: **Hawai'i** (accept **Hawaiian** islands)

The hula dance is said to have originated when this deity celebrated escaping her sister, the goddess of the oceans. This goddess of volcanoes is credited with creating the Hawaiian islands.

ANSWER: **Pele** [pay-lay]

In traditional Hawaiian culture, these skilled high priests preserved and passed down the rituals of hula dancing, as well as spiritual teaching and general skills like navigation and farming. Today, this term is often used outside Hawai'i as a generic term for a leader.

ANSWER: **Kahuna**

(16) This short story concludes that “of all who give gifts,” this story’s protagonists “were the wisest.” For ten points each,

Name this short story in which Della cuts her hair to buy a chain for her husband, James, who has sold his watch to buy a comb for Della’s hair.

ANSWER: The Gift of the Magi

“The Gift of the Magi” was anthologized in this short story collection. Many short stories in this collection, such as “The Cop and the Anthem,” are set in New York City, whose population in the early 1900s inspired this collection’s name.

ANSWER: The Four Million

*The Four Million* is a short story collection by this author, who also wrote “A Retrieved Reformation” and “The Ransom of Red Chief.”

ANSWER: O. Henry (accept William Sydney Porter)

(17) Name the following American cities based on their Civil War history, for ten points each.

Montgomery, Alabama was briefly the capital of the Confederacy, but in 1861, it was moved to this Virginia city.

ANSWER: Richmond

General Sherman’s March to the Sea started after the capture of Atlanta and finished at this Georgia port city five weeks later.

ANSWER: Savannah

The largest race riots in American history took place in this Northern city in July 1863, where over a hundred people died in a dispute over the draft. Gatling guns were used by workers of this city’s *Times* newspaper to threaten away rioters.

ANSWER: New York City (accept NYC; accept The New York Times)

(18) Answer the following about British composer Benjamin Britten, for ten points each.

Benjamin Britten’s opera *Peter Grimes* contains four interludes depicting this type of location. Ralph Vaughan Williams [rayf von williams] wrote a symphony about this type of location, and Debussy’s *La Mer* depicts the “Play of the Waves” in this type of location.

ANSWER: the sea (accept Sea Symphony; accept anything related to the ocean, etc.)

This Britten work is based on a Rondo from Henry Purcell’s *Abdelazer*. In this work, each instrument plays their own variation as they are introduced to the audience.

ANSWER: A Young Person’s Guide to the Orchestra

Benjamin Britten wrote an opera based on *A Midsummer Night’s Dream*. A century earlier, this composer wrote an overture and incidental music, including a famous Wedding March, for the same play.

ANSWER: Felix Mendelssohn Bartholdi

(19) Answer these questions about applying trigonometric functions to physics problems, for ten points each.

The sine and cosine functions can be used to resolve one of these quantities into vertical and horizontal components. These quantities, such as velocity, have both magnitude and direction.

ANSWER: vectors

For an object sitting on a ramp, multiplying the object's weight by the cosine of the angle of incline yields this force. This force is always perpendicular to the contact surface.

ANSWER: normal force

Applying the sine function to the angle of incidence will help you calculate the angle of refraction using this law that relates the change in light's direction at a boundary to the indices of refraction on either side. This law predicts that a pencil in a cup of water will appear bent.

ANSWER: Snell's law (accept Snell-Descartes law; prompt on "law of refraction")

(20) This novel is one of its author's *Voyages extraordinaires* [voh-YAHJ ex-tra-or-dee-NAYR], a series of early science fiction adventure novels that explore the furthest reaches of the Earth. For ten points each,

Name this novel in which Professor Otto Lidenbrock leads an expedition through a volcano and into a series of undiscovered caverns, where he finds a hidden world of giants and dinosaurs deep underground.

ANSWER: Journey to the Center of the Earth (accept Journey to the Interior of the Earth; accept Voyage au centre de la Terre)

In *Journey to the Center of the Earth*, Professor Lidenbrock's expedition begins at the Snaefell volcano in this Nordic country. This country is the home of Hans Bjelke [Hans b-YELL-kuh], Professor Lidenbrock's guide.

ANSWER: Iceland (accept Ísland)

This early French science fiction author's adventure novels include *Journey to the Center of the Earth* and *Twenty Thousand Leagues Under the Sea*.

ANSWER: Jules Gabriel Verne