

Round 9

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Tossups

(1) **An artwork of this type was destroyed on the orders of Nelson Rockefeller because it depicted Vladimir Lenin, and was called *Man at the Crossroads*. A work of this type that shows Plato and Aristotle walking together is Raphael's *The (*) School of Athens*. A set of these artworks depicting *Industry* were created by Diego Rivera to line a room in the Detroit Institute of Art. These artworks that are called "frescoes" when they are painted on wet plaster. For ten points, name this type of painting done on a wall.**

ANSWER: murals (accept frescoes before it is read; prompt on "painting" before "painted" is read; do not accept or prompt on "graffiti")

(2) **This measure is quantized by fractions of the Von Klitzing constant in a form of the Hall effect. A Wheatstone bridge can determine this quantity that, unlike reactance, leads to Joule heating. Finding the total value for this quantity requires summing the (*) reciprocal value of each component in a parallel circuit. Conductance is the reciprocal of this quantity, which is measured in ohms. For ten points, name this quantity, equal to voltage over current, that opposes the flow of electricity.**

ANSWER: electrical resistance (prompt on "R")

(3) **This president's train refused to stop to aid the victims of a platform collapse that killed thirteen people who were waiting to hear him speak on his "Swing Around the Circle" speaking tour, in which this man ranted against the Radical Republicans. (*) Edwin Stanton barricaded himself in his office rather than allow this man to fire him as Secretary of War. The first US president to be impeached was, for ten points, what man who succeeded Abraham Lincoln?**

ANSWER: Andrew Johnson (prompt on "Johnson")

(4) **An ancient statue of this deity in Sais, sometimes believed to be Neith, wore a veil to represent the mysteries of nature. According to Plutarch, Nephthys disguised herself as this deity to conceive Anubis. After this deity's husband was (*) cut apart by this goddess's brother, Set, this goddess gathered the pieces from across Egypt, and reassembled his body, making him the king of the underworld. For ten points, name this queen of the Egyptian gods who was married to her brother Osiris.**

ANSWER: Isis (accept Ase; accept Wusa)

(5) **In a novel from this country, Bamford and Maureen Smales flee to the village of the title Black servant to escape a revolution. In another novel set in this country, Absalom is sentenced to death for the murder of Arthur Jarvis, saddening his father, (*) Stephen Kumalo. This country is the setting of Nadine Gordimer's *July's People* and an Alan Paton novel set during this country's Apartheid era. For ten points, name this country, the setting of *Cry, the Beloved Country*, which takes place partially in Johannesburg.**

ANSWER: South Africa (accept Republic of South Africa; accept RSA)

(6) **In the steampunk space shooter game *Jamestown: Legend of the Lost Colony*, the seventeenth century colony of Jamestown is actually this location. In *Destiny*, the Cabal and Vex fought in Meridian Bay on this planet. The economic real-time strategy game (*) *Offworld Trading Company* is set on this planet, where Olivia Pierce opens a portal to Hell in the 2016 reboot of *DOOM*. The *Red Faction* series is set on, for ten points, what red planet that, in many video games, is the first one colonized by humans?**

ANSWER: Mars

(7) **This country's Cumann na mBan [koo-mahn nah mahn] paramilitary force included sniper Constance Markievicz, who participated in an attack on Saint Stephen's Green. The Black and Tans formed to fight for this country's independence, which it gained in a treaty negotiated by Michael Collins. A General (*) Post Office in this country was the central site of its Easter Rising in 1916. This country gained Home Rule in 1922, leaving its northern portion in the United Kingdom. For ten points, name this country governed from Dublin.**

ANSWER: Ireland (accept Eire; accept Republic of Ireland or Poblacht na hÉireann; accept Irish Free State; do not accept or prompt on "Northern Ireland")

(8) **Description acceptable. Food production and this process were the goals of Egypt's IBTS Greenhouse project. Graphene oxide membranes are the newest technology for this process, which uses ion channel traps in its electro-dialysis form. A solar (*) still achieves this process slowly, and Key West is supplied by a plant that does this by reverse osmosis. Brine is a waste product of, for ten points, what process that creates potable drinking water from seawater?**

ANSWER: desalination (accept desalinization or desalting; accept any description of removing salt from water)

(9) **A character in this novel carries a snuff-box filled with parmesan cheese while on a trip funded by Squire Trelawney. This novel's protagonist follows Doctor Livesey to Ben Gunn's cave, where he finds Smollett, the captain of the (*) *Hispaniola*, who had been run off by his ship's cook, the peg-legged Long John Silver. For ten points, name this Robert Louis Stevenson adventure novel in which young Jim Hawkins survives a mutiny and finds hidden pirate gold.**

ANSWER: Treasure Island or the Mutiny of the Hispaniola

(10) **A planned highway across this region called BR-230 is largely unpaved between Altamira and Benjamin Constant. Most of the state of Mato Grosso is south of this region; Mato Grosso also includes some of the (*) Pantanal wetlands. Contrary to popular belief, the red-eyed tree frog is *not* native to this region, but piranhas and anacondas are. Dust from the Sahara Desert blows across the Atlantic Ocean to fertilize, for ten points, what massive tropical ecosystem around the longest river in South America?**

ANSWER: Amazon rainforest

(11) **This author wrote about a slave revolt on the *San Dominick* in “Benito Cereno,” and about Turkey and Nippers, whose coworker starves to death, in another story from *The Piazza Tales*. In a novel by this author of (*) “Bartleby, the Scrivener,” the stuttering title character is executed by Captain Vere for killing John Claggart. In another novel, this author wrote about Ishmael’s journey on the *Pequod* with the obsessive Captain Ahab. For ten points, name this author of *Billy Budd* and *Moby Dick*.**

ANSWER: Herman Melville

(12) **A repeated motif in this musical begins with a tritone that represents Bernardo’s sister. A song in this musical alternates between three-four and six-eight time to describe a place where “industry booms” but there are “twelve in a room.” In this musical, (*) “America” is sung by the Sharks, members of a Puerto Rican gang that opposes the white Jets. For ten points, name this Leonard Bernstein musical in which Tony and Maria’s doomed love retells the story of *Romeo and Juliet* in 1950s New York.**

ANSWER: West Side Story

(13) **According to “The Tale of the Heike,” an archer from this country once shot down a fan from the top of a ship’s mast. In the 1180s, two clans fought the Genpei War in this country. Seven hundred years later, another civil war in this country, the (*) Boshin War, ended with the restoration of imperial power under Emperor Meiji [may-jee]. For ten points, name this East Asian country that, during its rule by shoguns like Tokugawa Ieyasu [toh-koo-gah-wah ee-yay-ah-soo], was home to warrior aristocrats called samurai.**

ANSWER: Japan (accept Nihon-koku or Nippon-koku)

(14) **This book’s frontispiece includes a Latin quote from the book of Job over a print of a giant holding a sword and staff, whose body is made up of hundreds of (*) people. The final section of this book describes a “Kingdom of Darkness,” and its first part describes the state of nature as a “war of all against all.” A ruler with absolute power should engage in a “social contract” with the citizens according to, for ten points, what book by Thomas Hobbes named for a biblical sea monster?**

ANSWER: Leviathan: Or, The Matter, Forme, and Power of a Common Wealth Ecclesiasticall and Civil

(15) **Sediments in these regions form top-set and bottom-set layers, and the Gilbert type of them marks locations of ancient lakes. An alluvial fan with a bird’s-foot pattern is characteristic of many of these regions, though strong tidal forces prevent the (*) St Lawrence from creating one. One of these regions occurs where the Nile meets the Mediterranean. For ten points, identify this triangular plain at a river’s mouth, shaped like the fourth letter of the Greek alphabet.**

ANSWER: river deltas (prompt on “mouth” or “river mouth” before it is read)

(16) **The linear type of this branch of mathematics is studied with vector spaces. The complex roots of polynomials are the subject of the fundamental theorem of this subject, whose name comes from a ninth-century book by (*) Persian mathematician al’Khwarizmi [al-kwa-RIZ-mee] about “balancing.” This subject is commonly first taught by applying arithmetic to both numbers and variables. For ten points, name this branch of mathematics that solves equations like “three x plus four equals zero.”**

ANSWER: algebra

(17) **This Millennialist religious denomination follows a Governing Body known as God’s “faithful and discreet slave.” This denomination celebrates Memorialization, but does not recognize Christmas, Easter, or (*) birthdays.** This denomination’s Weekend Meetings use the “Study Edition” of the *Watchtower* magazine, and it forbids believers from engaging in military service or receiving blood transfusions. For ten points, name this Christian denomination known for preaching door-to-door.

ANSWER: Jehovah’s witnesses (prompt on “Bible Students” or “Bible Student movement”)

(18) **Discovering the molecular basis for circadian rhythms in this organism earned Jeffrey Hall the 2017 Nobel Prize. The salivary glands of this organism contain large polytene chromosomes. *Antenna-pedia* mutants of this animal grow legs from their heads, and *dumpy* mutants have misshapen (*) wings.** Thomas Hunt Morgan first observed sex-linked traits in white-eyed members of this species. For ten points, name this insect model organism of genetics whose common name reflects its love for sweet vegetation.

ANSWER: fruit fly (accept *Drosophila melanogaster*; accept vinegar fly; prompt on “fly”)

(19) **In this novel, a “Voice” gives a set of scientific notebooks to Thomas Marvel, who is shocked to see bread and cheese floating in the air. While trying to start a “Reign of Terror” throughout England in this novel, (*) Griffin describes drugging a cat to reduce its ability to reflect or refract light, and reveals he has done the same to himself.** For ten points, name this novel by H.G. Wells in which the title scientist creates a potion that makes him impossible to see.

ANSWER: The Invisible Man

(20) **The group that chartered this ship was forced to take on passengers they called “Strangers,” who had tried to sail on the *Speedwell*. The journal of William Bradford describes life aboard this ship, whose passengers signed a namesake (*) Compact of laws for the colony they would establish.** This ship was supposed to land in Virginia, but storms on the North Atlantic blew it northward. For ten points, name this ship in which the Pilgrims landed near Plymouth Rock.

ANSWER: Mayflower

Bonuses

(1) A collection of fables named for this storyteller includes the French versions of “Puss in Boots” and “Sleeping Beauty.” For ten points each,

Name this fictional storyteller, who is often depicted as a kindly grandmother or as a wise, maternal bird.

ANSWER: Mother Goose (accept The Tales of Mother Goose; accept Les Contes de ma Mère l’Oye)

This French fabulist collected and updated European folktales like “Sleeping Beauty” in *The Tales of Mother Goose*.

ANSWER: Charles Perrault

In this story from *The Tales of Mother Goose*, the title girl learns not to talk to strangers after she and her grandmother are eaten by a wolf.

ANSWER: Little Red Riding Hood (accept Le Petit chaperon rouge)

(2) This holiday typically lasts five days and celebrates the triumph of good over evil. For ten points each,

Name this Hindu festival of lights that marks the day Rama defeated Ravana and returned to Ayodhya [eye-yohd-hya] with his wife, Sita.

ANSWER: Diwali (accept Divali or Deepvali)

During Diwali, a puja is performed for this goddess of wealth. This consort of Vishnu is often depicted with four arms and sitting on a lotus.

ANSWER: Lakshmi (accept Laksmi; accept Shri; accept Malakshmi)

The last day of Diwali celebrates people with this family relationship. During the celebration, women feed men who have this familial relationship to them, with whom they likely grew up.

ANSWER: siblings (accept brothers and/or sisters)

(3) The CEO of this company, Elizabeth Holmes, was indicted for wire fraud in a trial that began in August 2021. For ten points each,

Name this health tech company that falsely claimed it could perform elaborate medical tests on mere drops of blood.

ANSWER: Theranos

Prior to Holmes’ indictment for wire fraud, Theranos itself settled lawsuits for fraud brought by this US regulatory body. This organization, created after the 1929 stock market crash, enforces laws against financial crimes like insider trading and market manipulation.

ANSWER: Securities and Exchange Commission (accept SEC)

Prior to the collapse of Theranos, Holmes was often cited as one of the few women to succeed in this California region, whose name is commonly used for the American tech industry. Apple, Google, and numerous other companies founded here have habitually discriminated against women and minorities.

ANSWER: Silicon Valley

(4) This city's namesake empire took control of much of what is now Spain in the 200s BCE. For ten points each, Name this Phoenecian city, the capital of an empire built by Hamilcar Barca and his son Hannibal.

ANSWER: Carthage (accept Carthaginian Empire)

Carthage laid claim to the Iberian peninsula to strengthen their position in a Punic War against this republic based in Italy, which later ruled the territory they called "Hispania" under emperors like Trajan and Hadrian.

ANSWER: Rome (accept Roman Republic; accept Roman Empire; do not accept or prompt on "Holy Roman Empire")

Rome completed its conquest of Hispania under this first emperor, who defeated Mark Antony and established the Pax Romana.

ANSWER: Caesar Augustus (accept Augustus Caesar; accept Gaius Octavius; accept Octavian; do not accept or prompt on "Caesar" alone)

(5) The Carboniferous period may have resulted from an inability of decomposers to deal with a new molecule, lignin, being incorporated into this structure. For ten points each,

Name this rigid structure that allows plant cells, but not animal cells, to withstand turgor pressure. It is found outside the cell membrane.

ANSWER: cell wall

Unlike the walls of fungi, which are composed of chitin [KYE-tin], plant walls are made of this glucose poly-saccharide.

ANSWER: cellulose

Primary plant walls also contain varying amounts of this galactose polymer that is plentiful in apples and citrus fruits. This molecule is the gelling agent in jams and jellies.

ANSWER: fruit pectin

(6) René Descartes [day-cart] names a type of product created by listing ordered pairs that combine elements from these objects. For ten points each,

Give this mathematical term for an unordered collection of numbers. The elements of these groups are usually written inside curvy braces.

ANSWER: sets

The set with no elements is described by one of two adjectives; give either. One of these two adjectives is also used to indicate a missing value in a database.

ANSWER: null set (accept empty set)

If two sets have no elements in common, then their intersection will be the empty set. In that case, this type of diagram for the sets will display two non-overlapping circles. More commonly, one of these diagrams has two circles with an overlapping section in the middle.

ANSWER: Venn diagram (accept Euler diagram)

(7) This composer wrote the *Holberg Suite* and a musical suite that accompanies a Henrik Ibsen play about a folk hero. For ten points each,

Name this Norwegian composer who included songs like “Anitra’s Dance,” “Solveig’s Song,” and “The Death of Ase” in his *Peer Gynt Suite*.

ANSWER: Edvard **Grieg** [greeg] (accept Edvard Hagerup **Grieg**)

This mysterious-sounding song from the *Peer Gynt Suite* gradually grows louder and faster to represent Peer being chased.

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

The song *In the Hall of the Mountain King* is set in the home of one of these mythical Scandinavian creatures. These humanoid creatures often have tails, and may turn to stone in the sunlight.

ANSWER: **troll**

(8) William Travis wrote “VICTORY OR DEATH” in a plea to “the People of Texas & All Americans in the World” during the siege of this fort. For ten points each,

Name this San Antonio fort that was besieged by Santa Anna’s forces in early 1836.

ANSWER: **Alamo** Mission

Another defender of the Alamo was this man, whose proficiency with a long-bladed knife led its type to be named for him.

ANSWER: James **Bowie** [BOO-wee] (accept **Bowie** knife)

This frontiersman and hater of Andrew Jackson died alongside James Bowie and William Travis while defending the Alamo.

ANSWER: Davy **Crockett** (accept David **Crockett**)

(9) This list’s one-hundred-tenth and final object, a dwarf satellite galaxy, was added in 1967, nearly two hundred years after its first publication. For ten points each,

Name this catalog of astronomical objects compiled by a French astronomer in the eighteenth century. In this catalog, M45 is the Pleiades cluster, and M31 is the Andromeda galaxy.

ANSWER: **Messier** catalog

Messier referred to most of his objects by this term. However, we now know that only a handful are really these interstellar dust clouds. Two of these objects are M16 and M1, nicknamed the “Eagle” and the “Crab.”

ANSWER: **nebula** (accept **nebulas** or **nebulae**)

M42 is the nebula named for this constellation, which contains the stars Alnitak, Alnilam, and Mintaka in its belt.

ANSWER: **Orion** (prompt on “the hunter”)

(10) As a baby, this mythical Greek king is sent out to die because his parents fear he will fulfill a dire prophecy. For ten points each,

Name this mythical Greek figure who fulfills part of the prophecy when he kills his father, Laius [LAH-yuss], and becomes the king of Thebes in a series of plays by Sophocles.

ANSWER: Oedipus (accept Oedipus Rex or Oedipus Tyrannus; accept Oedipus at Colonus)

Oedipus becomes the king of Thebes by solving a riddle posed by this mythical creature, which has the body of a lion and the head of a human.

ANSWER: Sphinx

Oedipus fulfills the second part of his prophecy by marrying Jocasta, a woman who unknowingly has this familial relationship with Oedipus.

ANSWER: she is his own mother (accept equivalents like she is his mom; accept reversed and equivalent descriptions like he is her son or her child)

(11) In 2017, an armed, all-female unit was established in Zimbabwe to help combat this crime. For ten points each, Name this illegal act of hunting or capturing wild animals. A common form of this crime is killing elephants for their ivory.

ANSWER: poaching (accept word forms like poachers)

Black rhinos have nearly gone extinct due to poaching in this African region. This grassland is the namesake of a national park in Tanzania, and reaches the Maasai Mara National Park in Kenya.

ANSWER: Serengeti (accept Serengeti National Park)

During migration season, thousands of wildebeests and this striped equine cross the Serengeti in search of new grass.

ANSWER: zebras

(12) The two D-lines are indicative of sodium when light from the Sun is analyzed by this method. For ten points each,

Name this technique in which the light given off by a heated element is separated into a characteristic pattern of emission lines.

ANSWER: atomic emission spectroscopy (accept spectrometry; accept spectrography)

Sodium's two D-lines are found in this color of the visible spectrum, which is also the color of potassium chromate solution and lead [led] iodide solid.

ANSWER: yellow

Two violet, one blue, and one red line are found in the Balmer spectral series of this element, the simplest and most abundant element in the universe.

ANSWER: hydrogen (accept H)

(13) This poem claims it will “justify the ways of God to man.” For ten points each,

Name this epic poem by John Milton that follows the creation, temptation, and downfall of Adam and Eve.

ANSWER: **Paradise Lost**

Paradise Lost fulfills its title when Adam and Eve take “their solitary way” and leave the paradise of this biblical garden.

ANSWER: Garden of **Eden** (accept **Garden of God** or **gan-Yahweh**)

Despite the angels’ efforts, Eve is tempted by this character, who was called Lucifer before the Angelic War. This figure thinks it is “better to reign in Hell than serve in Heaven.”

ANSWER: **Satan** (accept the **devil**)

(14) Answer these questions about the many times Zeus transformed himself to seduce women, for ten points each.

Zeus seduced this woman while in the form of a swan. This woman had four children with Zeus, including Helen of Troy.

ANSWER: **Leda**

Zeus took the form of gold coins falling from the sky to seduce the princess Danaë. Afterwards, Danaë gave birth to this hero, who freed Andromeda and killed Medusa.

ANSWER: **Perseus**

Zeus seduced Europa by turning into one of these animals. Io, another woman seduced by Zeus, was turned into one of these animals by Hera.

ANSWER: **cattle** (accept equivalents like **cows** or **bulls**)

(15) Democrat Pat Schroeder described this man’s presidency as “Teflon-coated” because “nothing sticks to him.” For ten points each,

Name this president who somehow survived scandals like the Iran-Contra Affair during his two terms in office in the 1980s.

ANSWER: Ronald **Reagan** (accept Ronald Wilson **Reagan**)

Before becoming president of the United States, Ronald Reagan was the governor of this state.

ANSWER: **California**

While governor of California, Ronald Reagan legalized the “no-fault” form of this process. Ronald Reagan was the first US president to have gone through this process.

ANSWER: no-fault **divorce**

(16) This country's prime ministers have included Jawaharlal Nehru and his daughter, who ruled with an iron fist during the Emergency, and who ordered Operation Blue Star. For ten points each,

Name this modern country led for much of the sixties through eighties by Prime Minister Indira Gandhi from its capital, New Delhi.

ANSWER: **India** (accept Republic of **India**; accept **Bharat** Ganarajya)

When she declared a state of emergency, Indira Gandhi and her son Sanjay spearheaded a population control strategy in which poor men and women were forced to undergo this medical procedure.

ANSWER: sexual **sterilization** (accept word forms like **sterilize**; accept male and/or female **sterilization**; accept **vasectomy** or **tubectomy**)

Gandhi's time in office came to an abrupt end when she was assassinated by her bodyguards, who were followers of this religion. They were angry over Gandhi's attack on this religion's Golden Temple in Operation Blue Star.

ANSWER: **Sikhi** (accept word forms like **Sikhism** or **Sikhs**)

(17) According to Noether's theorem, quantities like mass and electric charge have this property in a closed system because the physical laws that describe them are symmetric. For ten points each,

Give this term that means that a measurable quantity of a system does not change over time. The first law of thermodynamics states that energy has this property.

ANSWER: **conservation** (accept word forms like **conserved**)

Conservation of this quantity, which is equal to moment of inertia times angular speed, explains why a rotating figure skater starts spinning faster when she pulls her arms toward her body.

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

When two objects experience this type of collision, the system's linear momentum will be conserved, but its kinetic energy will not.

ANSWER: **inelastic** collision

(18) In a poem named for one of these animals, a free one "leaps / on the back of the wind" while a caged one "sings / with a fearful trill / of things unknown / but longed for still." For ten points each,

Name this animal whose "wings are clipped" and who "sings of freedom."

ANSWER: **birds** (accept the caged **bird** or the free **bird**; accept I Know Why the **Caged Bird** Sings)

"Caged Bird" was written by this American poet and civil rights activist. Her autobiography series begins with the similarly named book, *I Know Why the Caged Bird Sings*.

ANSWER: Maya **Angelou** (accept Marguerite Annie **Johnson**)

Angelou recited her poem "On the Pulse of Morning" for the 1993 inauguration of this forty-second president of the United States, whose wife ran for the same office in 2016.

ANSWER: Bill **Clinton** (accept William Jefferson **Clinton**)

(19) Answer some questions about currently airing medical dramas, for ten points each,

This David Shore show is about the autistic Shaun Murphy. In the pilot of this show, Shaun saves a young boy who has been struck by falling glass at an airport.

ANSWER: The **Good Doctor**

Station-19 is a spin-off of this eighteen-season show, developed by Shonda Rhimes, in which Meredith Grey works at Grey Sloan Memorial in Seattle. Its title is a reference to a classic medical text.

ANSWER: **Grey's Anatomy**

This longest-running American soap opera debuted in 1963, and starred John Beradino and Emily McLaughlin until their respective deaths in the 1990s. Its current cast is led by Maurice Benard, who plays the mobster Sonny Corinthos.

ANSWER: **General Hospital** (accept **GH**)

(20) Edmonia Lewis was an American artist who drew on the history of her African-American and Ojibwe parents to create iconic neoclassical marble sculptures in the late 1800s. For ten points each,

Lewis sculpted a series of depictions of this fictional Ojibwe warrior and his wife, Minnehaha, who appear in a namesake "Song" written by Henry Wadsworth Longfellow.

ANSWER: **Hiawatha** (accept The **Song of Hiawatha**)

Lewis created a shockingly realistic sculpture of this Egyptian pharaoh lying dead across her throne. This ruler committed suicide with an asp after losing the Battle of Actium.

ANSWER: **Cleopatra** (accept The **Death of Cleopatra**; accept **Cleopatra VII** [seventh] Philopater)

Although many of her works have been destroyed, Lewis's surviving masterpiece is a sculpture of this biblical woman, an Egyptian maidservant who was the mother of Abraham's first son, Ishmael.

ANSWER: **Hagar** (accept **Hagar in the Wilderness**; accept **Hajar**)