

Round 9

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Tossups

(1) **Isaac Brock died while defending this territory at the Battle of Queenston Heights. Article 11 of the Articles of Confederation allowed this territory to bypass normal procedures if it wished to join the US. British troops burned Washington in (*)** retaliation for an attack on this territory that was meant to limit supplies to the Niagara peninsula. For ten points, name this former territory of British North America, land that became America's northern neighbor.

ANSWER: Canada (accept Upper Canada; accept Ontario; prompt on British "North America")

(2) **One of these objects named Themisto was discovered in 1975, but then lost for the next 25 years. The innermost of these objects form the Amalthea group, while the main group contains the most cratered and most volcanically active bodies in the (*)** Solar System. One of these bodies, which may have a water ocean beneath its icy crust, is called Europa. Galileo discovered the first four of, for ten points, what satellites that orbit the fifth planet from the Sun?

ANSWER: moons of Jupiter (accept Jovian moons; accept natural satellites of Jupiter or Jovian natural satellites before "satellites" is read; prompt on partial answers)

(3) **This material covers everything in a portrait of Adele Bloch-Bauer but her face and arms. This material was used in the backgrounds of works by Duccio to imitate Byzantine mosaics. A woman and man are shrouded in this material in Gustav (*)** Klimt's *The Kiss*. Ivory and this material are used in chryselephantine sculptures. For ten points, name this precious metal that can best be hammered into a thin decorative "leaf" when its purity is roughly 22 karats.

ANSWER: gold leaf (accept gold foil)

(4) **This author wrote about Reverend Hooper wearing a mysterious "Black Veil" in a short story, and created a character who dies after giving an Election Day sermon. In a novel by this author, Roger (*)** Chillingworth changes his name while pursuing his wife, who has been marked with the title shameful symbol. Hester Prynne was created by, for ten points, what author of *Twice-Told Tales* and *The Scarlet Letter*?

ANSWER: Nathaniel Hawthorne

(5) **In this city, hundreds of stone lions line a bridge named for Marco Polo, who praised it in his *Travels*. The Summer Palace sits on this city's Kunming Lake, a three-millennia-old, man-made reservoir created for the Yuan dynasty. A photo taken in this city shows a (*)** man standing in front of a line of tanks in its Tiananmen Square. The Forbidden City, the former home of the Emperor, is located in, for ten points, what capital of China?

ANSWER: Beijing (accept Peking)

(6) **Clementine is saved from these creatures by Lee Everett in a Telltale game. In another game, a “bungee” version of one of these creatures abducts Crazy Dave and attempts to attack the player’s home, only to be stopped by (*) peashooters; that game is *Plants vs. these creatures*. A special mode in many *Call of Duty* games pits the player against, for ten points, what reanimated corpses who serve as the main threat of *The Walking Dead*?**

ANSWER: zombies (accept The Walking Dead; accept Walkers; prompt on “undead”; prompt on “dead”)

(7) **The protagonist of this novel steals two silver candlesticks from the hospitable Bishop Myriel. Members of the student organization “Friends of the ABC” in this novel include the leader Enjolras and a child later shot in a riot, named (*) Gavroche. The lawyer Marius eventually marries Cosette, the adopted daughter of this novel’s protagonist, a man constantly pursued by the Inspector Javert. For ten points, name this Victor Hugo novel about the convict Jean Valjean.**

ANSWER: Les Miserables (accept The Dispossessed; or The Miserable Ones; or The Poor Ones; or The Wretched Ones; or The Pitiable Ones; prompt on “Les Mis”)

(8) **An enzyme’s turnover number can be calculated as V_{max} over this quantity for the enzyme. Colligative properties are only dependent on this quantity of the solute, and not its identity. This quantity for an acid can be determined via (*) titration, and pH is equal to the negative logarithm of this quantity for hydrogen ions in a given solution. For ten points, name this quantity, expressed in units of molarity or parts per million, that indicates how strong a chemical is.**

ANSWER: concentration

(9) **In this empire, boys were abducted into the *devshirme* system. After this empire was defeated in one war, the Treaty of Sèvres created borders that were rejected by Mustafa Kemal Ataturk. Mehmed VI was the last Sultan of this country, which joined in the (*) Central Powers with Germany, Austria-Hungary, Bulgaria. For ten points, name this “Sick Man of Europe,” an empire that dissolved after World War I, leading to the creation of Turkey.**

ANSWER: Ottoman Empire (do not accept or prompt on Turkey)

(10) **This conceptual group was supported by Athanasius’s description of homoousios, or a “single essence,” and was opposed by Arianism, which said that Jesus had instead been created by God. Belief in this group is declared in the (*) Nicene Creed, which says that there is a shared holiness between the Father, the Son, and the Holy Spirit. For ten points, name this group of three aspects of the Christian God.**

ANSWER: Holy Trinity (prompt on descriptions that include “Father, Son, and Holy Spirit” or “Holy Ghost;” prompt on descriptions like the “unity of God”)

(11) **This function is multiplied by i in DeMoivre’s formula, while its compliment function gives the real component instead. On the unit circle, this function relates the y-coordinate of a point; as such, this function of zero equals zero. Cosecant is the (*) reciprocal of this function which, in a right triangle, relates the side opposite an angle to the hypotenuse. For ten points, name this trigonometric function, the “SOH” in the “SOH-CAH-TOA” mnemonic.**

ANSWER: sine function

(12) **A character in this work is traumatized by the drowning of her son Grisha. Another character in this play is nicknamed the “eternal student” and is loved by Anya. Lopakhin purchases the title (*) estate from Madame Ranevskaya in this play, and the servant Firs is left to die in the title location. For ten points, name this Anton Chekov play that ends with the title fruit-producing trees being chopped down.**

ANSWER: The Cherry Orchard (accept Vishnevyy sad)

(13) **This president signed the Wagner Act, guaranteeing workers the right to collective bargaining, and created an organization symbolized by a blue eagle that was eventually ruled unconstitutional. Justice Owen Roberts participated in the (*) “switch in time that saved nine,” a move that avoided this man’s court-packing scheme. The National Recovery Administration was created by, for ten points, what President whose New Deal agencies helped end the Great Depression?**

ANSWER: Franklin Delano Roosevelt (accept FDR; prompt on Roosevelt)

(14) **The divergence of one of these entities equals zero according to Gauss’s law. Nikola Tesla used the force of a rotating one of these to construct an AC motor. The strength of one of these regions can be described by its flux density. Moving (*) charged particles generate these fields, an external one of which is key to a type of resonance imaging used in medicine. A sprinkling of iron filings can be used to show the lines of, for ten points, what kind of attractive field?**

ANSWER: magnetic fields (accept magnetic alone after “field” is read)

(15) **This philosopher used 20 yards of linen and 2 ounces of gold in a comparison between the commodity-form and money-form of value; that work outlines this man’s theory of surplus value as a driving force behind capitalism. An 1848 work primarily written by this man calls for the (*) “workers of the world” to “unite!” *Das Kapital* was written by, for ten points, what German philosopher who worked with Friedrich Engels on *The Communist Manifesto*?**

ANSWER: Karl Marx

(16) **One of these creatures, the son of Iapetus, fetched the apples of the Hesperides and tried to trick Heracles into taking his place. Another of these creatures had his liver eaten by birds every day as punishment for giving (*) fire to humans. These old gods, including Atlas and Prometheus, were overthrown and replaced in a namesake war against Zeus. For ten points, name this group of gods who preceded the Olympians.**

ANSWER: Titans (prompt on Greek “gods”)

(17) **Benny Goodman paid this composer two thousand dollars for a two-year exclusivity on his Clarinet Concerto. This man included a reading from the Gettysburg Address in the orchestral work *A Lincoln Portrait*. This composer of (*) *Fanfare for the Common Man* used the Shaker hymn “Simple Gifts” in a work that was choreographed by Martha Graham. For ten points, name this American composer of music for ballets like *Appalachian Spring*.**

ANSWER: Aaron Copland

(18) **In 1840, British colonists under William Hobson forced natives of what is now this country to sign away much of their land. In the 19th century, Hongi Hika used new technology to launch attacks at Lake Rotorua and the Bay of Plenty, starting a decades-long period called the (*) Musket Wars. The Treaty of Waitangi was signed by the indigenous Maori people in, for ten points, what Oceanic country east of Australia whose capital is Wellington?**

ANSWER: New Zealand (accept Aotearoa)

(19) **Archaea turn acetate into methane by this biochemical process, which also regenerates NAD⁺ [”N” “A” “D” plus] for use in glycolysis. This often effervescent process creates a molecule with an ethyl group out of sugars like dextrose and maltose. (*) Foods like sauerkraut and sourdough bread are created using this process, which is driven by microorganisms like yeast. For ten points, name this anaerobic process that forms the alcohol in beer and wine.**

ANSWER: fermentation (accept word forms; prompt on (anaerobic) respiration)

(20) **In this novel, “with sheets” is added to one of the Seven Commandments, which are written on a wall after Jones and his men are defeated at the Battle of the Cowshed. In this novel, Old Major teaches the song “Beasts of England,” Boxer repeats (*) “Napoleon is always right,” and Snowball teaches the motto “Four legs good! Two legs bad!” to a group of sheep. A Marxist revolution is led by pigs in, for ten points, what George Orwell novel?**

ANSWER: Animal Farm

Bonuses

(1) This man collaborated with William Wordsworth on the poetry collection *Lyrical Ballads*. For ten points each, Name this author of the poems “Christabel” and *The Rime of the Ancient Mariner*.

ANSWER: Samuel Taylor Coleridge

In Coleridge’s *Rime of the Ancient Mariner*, the title character tells his story to a man on the way to one of these events, although “the Bridegroom’s doors are open wide” to welcome him.

ANSWER: wedding ceremony (accept synonyms like “marriage”)

In the Mariner’s story, his ship is cursed after he shoots one of these birds with a crossbow, after which his crewmates force him to wear this bird around his neck.

ANSWER: albatross

(2) Heather Heyer was killed while counter-protesting a rally against the removal of one of these objects, many of which promote the “Lost Cause” theory and celebrate white supremacy. For ten points each,

Name this type of controversial public art.

ANSWER: monuments, memorials, statues, artwork, etc. dedicated to the Confederate States of America (accept the Confederacy; accept memorials, etc. for Robert E. Lee; prompt on memorials, etc. of the “Civil War”; prompt on memorials, etc. in the “South”; do not accept Confederate flags)

The aforementioned “Unite the Right” rally was organized in this city because it plans to remove its sculpture of Robert E. Lee from Emancipation Park, roughly a mile east of the University of Virginia.

ANSWER: Charlottesville

President Trump’s initial response to the violence in Charlottesville controversially claimed there was violence on “many sides.” This White House Chief of Staff, a former Marine, persuaded him to make another statement two days later, which was criticized as hollow.

ANSWER: John Kelly

(3) Cholera can be a fatal illness because it reverses the direction of this process across the lining of the small intestine. For ten points each,

Name this type of passive transport by which water diffuses across a semipermeable membrane. The reverse form of this process is used to purify drinking water.

ANSWER: (forward and/or reverse) osmosis

The rapid movement of water across the cell membrane is achieved through these channel proteins that are very abundant in nephrons.

ANSWER: aquaporins

Nephrons are the primary unit of this organ, which filters blood. Patients who have damaged or lost one of these bean-shaped organs may undergo dialysis.

ANSWER: kidneys

(4) This woman's ascension rights were restored with the Third Succession Act of 1543, though she and her younger sister remained legally illegitimate. For ten points each,

Name this Catholic queen of England who deposed Lady Jane Grey to become queen after the death of her younger half-brother, Edward VI.

ANSWER: Mary I (accept Bloody Mary)

Edward, Mary, and their half-sister, Elizabeth, were the only children of this man, who split from the Catholic church and married six women in a desperate attempt to father more heirs.

ANSWER: Henry VIII (prompt on "Henry")

The Third Succession Act was supported by this woman, who served as Queen Regent while Henry fought in France, and survived him by a year.

ANSWER: Catherine Parr (prompt on "Catherine")

(5) This mythical figure's parents were either King Lot and Morgause or Morgaine and her half-brother. For ten points each,

Name this figure from British legend, who mortally wounded a king at the Battle of Camlann, where this man was killed.

ANSWER: Mordred (accept Medraut; accept Modred)

Mordred betrayed this legendary king, who established the Round Table, went to war with Lancelot over his wife Guinevere, and was transported to Avalon after being mortally wounded at the Battle of Camlann.

ANSWER: King Arthur Pendragon

This mystic was unable to protect Arthur at the Battle of Camlann because he had been imprisoned in a cave by the sorceress Nimue, who had been this man's student.

ANSWER: Merlinus Ambrosius (accept Myrddin Emrys; prompt on "Emrys" or "Ambrosius")

(6) The musical concept of a *raga*, a progressive set of notes that provides certain emotions, is used in this country's two primary schools of classical music, Carnatic and Hindustani. For ten points each,

Name this country whose classical composers have included Ravi Shankar.

ANSWER: India

Ravi Shankar was known for playing this instrument, which features several pluckable strings and numerous sympathetic strings that provide resonant sound without being played directly.

ANSWER: sitar

Ragas in Indian music are often compared with this concept in Western music, in which the feeling of a piece is altered by the starting position of the major scale. Types of this concept include Dorian, Lydian, and Ionian.

ANSWER: modes

(7) Consider a train traveling along a perfectly circular track at a constant speed. For ten points each, Dividing the train's speed by the radius of the track gives this quantity, usually expressed in radians per second.

ANSWER: **angular velocity** (do not prompt on "velocity")

If the train is moving counter-clockwise, then the angular velocity vector points straight up according to this rule, which relies on the curl of the fingers and the direction of the thumb.

ANSWER: **right-hand** rule

Any passengers aboard the train will feel pulled toward the outside of the track because of this fictitious force directed away from the axis of rotation.

ANSWER: **centrifugal** force (do not accept "centripetal" force)

(8) In this epic poem, Hephaestus forges a magnificent shield decorated with scenes of farming, marriage, trial, and battle. For ten points each,

Name this poem, in which Thetis asks Hephaestus to make the shield so her son can avenge the killing of his friend Patroclus by Hector.

ANSWER: The **Iliad**

The shield is made for this Greek hero, who had been made nearly invincible when his mother, Thetis, dipped him into the river Styx. This warrior does eventually kill Hector, who predicts this man's eventual death.

ANSWER: **Achilles**

Achilles dies before the Greeks finally defeat Troy with the use of this enormous, wooden structure. This apparent "gift" to Troy contains hidden Greek soldiers, allowing them to attack from inside the city.

ANSWER: Trojan **Horse**

(9) The Seattle SuperSonics were moved in 2008 to become this team. For ten points each,

Name this NBA team that recently acquired Paul George and Carmelo Anthony to pair with Russell Westbrook.

ANSWER: **Oklahoma City Thunder** (accept either or both names; accept **OKC**)

In the 2016-17 season, Russell Westbrook averaged a triple-double per game, helping him win this award over James Harden. In his 2014 acceptance speech for this award, then-Thunder player Kevin Durant tearfully declared that his mother was "da real" winner of this award.

ANSWER: **Most Valuable Player** (accept **MVP**)

The Thunder traded Domantas Sabonis and this guard, originally a draft pick of the Orlando Magic, to the Indiana Pacers for Paul George. Thus, this player returns to Indiana, where he played in college.

ANSWER: Victor **Oladipo**

(10) These inventors developed three-axis control, which is key to maintaining a fixed-wing aircraft, in a patent filed in 1903. For ten points each,

Name this pair of brothers who built and flew the first successful airplane.

ANSWER: Orville and Wilbur **Wright** (accept the **Wright** Brothers; prompt on Orville and Wilbur alone)

The Wright Brothers successfully tested their airplane on this east coast state's Outer Banks in the city of Kitty Hawk.

ANSWER: **North Carolina**

The Wright Brothers' original Flyer is part of this historical organization's collection, despite a heated feud with this organization in the 1920s and 30s over proper credit for the early history of aviation.

ANSWER: **Smithsonian** Institution (accept **National Air & Space** Museum)

(11) Traditionally, this constant is defined by twelve grams of carbon-12, but recent measurements are based on a one kilogram silicon sphere. For ten points each,

Name this chemistry constant, equal to about 6.02 times ten to the 23rd power, that is the number of particles in one mole of any substance.

ANSWER: **Avogadro**'s number (accept "constant" instead of "number")

Avogadro's number, along with balanced equations and molar masses, is crucial to this branch of chemistry that calculates amounts of reactants and products in reactions.

ANSWER: **stoichiometry**

The techniques of stoichiometry can be used to find this quantity, the amount of product that *should* be made from a known amount of the limiting reactant. In practice, problems with lab techniques may make the actual value different.

ANSWER: **theoretical yield** (accept word forms, like **theoretic yield**; prompt on partial answers)

(12) A Paschal one of these ritual objects is decorated with a cross, an alpha, and an omega. For ten points each,

Name these ritual objects. During Havdalah, a braided one of these objects with multiple wicks is lit and burned.

ANSWER: **candles**

Nine candles are burned in a namesake holder during this Jewish winter holiday that commemorates the eight days during which the oil in the Temple in Jerusalem miraculously burned.

ANSWER: **Hanukkah** (accept **Chanukah**)

Red, black, and green candles represent struggles, humans, and hope when held in a Kinara during this American cultural holiday.

ANSWER: **Kwanzaa**

(13) In Basile's Italian version of this fairy tale, the title Princess Talia gives birth to twins, who wake her up by suckling on her fingers. For ten points each,

Name this fairy tale. In French fabulist Charles Perrault's version of this fairy tale, the title princess is awoken from a hundred-year sleep by the kiss of a prince.

ANSWER: Sleeping Beauty (accept La belle au bois dormant or The Beauty Sleeping in the Woods; accept Sole, Luna, e Talia or Sun, Moon, and Talia)

In an 1812 version of this fairy tale, Dame Gothel locks the title woman in a tower, but cuts her hair and sends her away after discovering that she is pregnant with twins.

ANSWER: Rapunzel

"Rapunzel" was recorded in a collection of *Children's and Household Tales* by this pair of German brothers.

ANSWER: Grimm brothers (accept Johann and Wilhelm Grimm)

(14) The Strait of Kerch separates this peninsula from the Russian mainland. For ten points each,

Name this region, home to cities like Sevastopol and Yalta. It was annexed by Russia in 2014 after a highly questionable referendum.

ANSWER: Crimea (accept the Crimean Peninsula)

The Crimean peninsula was annexed by Russia from this country, where pro-Russian forces have seized buildings in eastern cities like Donetsk. The Dneiper [nee-per] River flows through this country's capital, Kiev.

ANSWER: Ukraine

The Crimean peninsula juts into this large central Asian sea, which the Strait of Kerch connects to the Sea of Azov to its north. To the east of this sea are the Caucasus mountain range and, beyond that, the Caspian Sea.

ANSWER: Black Sea

(15) The British and Americans didn't really get along for a while after the Revolution. For ten points each,

In 1795, war between Great Britain and the United States was avoided due to a treaty named for this man. This first Chief Justice of the United States also contributed to the *Federalist Papers*.

ANSWER: John Jay (accept Jay's Treaty)

In the early 19th century, British ships impressed American sailors into service and British forces supported Native American raids on American settlers; in Congress, War Hawks agitated until James Madison asked for the declaration of this war.

ANSWER: War of 1812

During the War of 1812, Andrew Jackson won the Battle of Horseshoe Bend with support from this native tribe. Despite their service, this tribe was forced off their land with the 1835 Treaty of New Echota.

ANSWER: Cherokee

(16) Common logarithms assume this number as the base. For ten points each,

Give this number. It is the base of the decimal system and, as such, inspires the workings of the metric system.

ANSWER: ten

In base systems larger than ten, the value of “ten” takes up a single digit, usually written as “A.” This numeral system, which uses base 16 and is common in computing, uses the letters A through F to serve as digits.

ANSWER: hexadecimal (prompt on “hex”)

The hexadecimal value 100 [“one zero zero”] is equal to this value in the decimal system.

ANSWER: 256 [can be read as “two hundred fifty-six” or as “two five six”] (accept 16 squared)

(17) The Edgar Allan Poe character C. Auguste Dupin solves crimes using second-hand information, making him the first literary example of the “armchair” type of people with this profession. For ten points each,

Name this profession that, after Poe published his stories about C. Auguste Dupin, became a popular literary subject, as in Sir Arthur Conan Doyle’s Sherlock Holmes stories.

ANSWER: armchair detective (accept amateur detective; accept private detective; accept consulting detective)

In C. Auguste Dupin’s first appearance, he discovers who killed Madame L’Espanaye and her daughter on this title Parisian street.

ANSWER: Rue Morgue (accept The Murders in the Rue Morgue)

In this other Poe short story, C. Auguste Dupin finds the title object, which had been stolen from a noblewoman by a government minister.

ANSWER: The Purloined Letter

(18) One of these people holds a bouquet of flowers as she bends over with a leg in the air behind her in *Fin d’Arabesque* [fan da-rah-BESK]. For ten points each,

Name these tutu-wearing people who appear practicing *at the Barre* in another painting.

ANSWER: ballet dancers (accept ballerinas)

Fin d’Arabesque and *Dancers at the Barre* are by this French painter and sculptor, who also created *Little Dancer of Fourteen Years* and *L’Absinthe* [lab-SANTH].

ANSWER: (Hilaire Germain) Edgar Degas

In a Degas painting set in this American city, his brother René reads *The Daily Picayune* while a group of men feel out the quality of the title product at *A Cotton Exchange* in this city.

ANSWER: New Orleans (accept A Cotton Exchange in New Orleans or The Cotton Exchange in New Orleans; accept A/The New Orleans Cotton Exchange; accept “office” in place of “exchange” in all above-listed answers)

(19) Because of the slash-and-burn agriculture needed to grow palm trees on rainforest soil, palm oil is usually not considered this type of crop. For ten points each,

Give this term, which is applied to foods like coffee and cocoa that are certified by UTZ or the Rainforest Alliance if their production did not degrade the environment or threaten the quality of the farmers' lives.

ANSWER: **sustainable** (accept word forms like **sustainability**)

Some agriculture is considered unsustainable due to the overuse of these chemicals, which can cause runoff of nitrogen into rivers, lakes, and other water sources. This term applies to any material, including natural manure and synthetic ammonia-based chemicals, that provides nutrients to plants.

ANSWER: **fertilizers**

The high water demand of this non-food, fiber crop led to such unsustainable irrigation in the USSR that the Aral Sea shrank to 10% of its original size.

ANSWER: **cotton**

(20) This European country's colonial holdings included the Congo Free State, where enslaved workers had their hands cut off if they couldn't harvest enough of a certain crop. For ten points each,

Name this country. Originally, its King Leopold II personally owned the Congo and authorized the Force Publique to commit atrocities to protect his investments.

ANSWER: **Belgium**

Leopold II was given control of the Congo in an 1880s conference held in this German capital city.

ANSWER: **Berlin** (accept **Berlin** Conference)

After ivory production proved relatively weak, Leopold's profiteering from the Belgian Congo primarily relied on this crop. It is harvested from the latex of trees and vines, and it can be vulcanized to stabilize it for commercial use.

ANSWER: **rubber**