

## Round 7

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### Tossups

(1) **During this battle, Simon Fraser was targeted for death by Benedict Arnold, whose wounded leg was memorialized at Bemis Heights, in this battle's location. John Burgoyne's (\*) surrender at this 1777 battle led France to promise aid to the colonies. For ten points, name this upstate New York battle in which victory over the British is often cited as the turning point of the American Revolution.**

ANSWER: Battle(s) of Saratoga (accept the Battle of Bemis Heights before it is read; accept "Campaign" or similar terms in place of "Battle")

(2) **This organ's duct of Wirsung drains through the ampulla of Vater into the duodenum. Like the stomach and intestines, this organ can develop gastrinomas. Amylin and glucagon are produced by beta and alpha cells in this organ's (\*) Islets of Langerhans, which helps promote stability of blood glucose levels. Type I diabetes targets, for ten points, what organ's insulin-secreting cells?**

ANSWER: pancreas

(3) **In one of this author's novels, Luke Castella and Thalia Grace take in Annabeth Chase. This author's novel *The Son of Sobek* links several of his other works, including a series about the adventures of (\*) Carter and Sadie, a series about Magnus Chase, and a series beginning with *The Lightning Thief*. For ten points, name this author of the mythology-inspired *Kane Chronicles* and *Percy Jackson* novel series.**

ANSWER: Richard Russell "Rick" Riordan

(4) **A Symbolist composer in this country never wrote opera again after his work about Pelleas and Melisande flopped. After visiting this country, George Gershwin wrote a piece for orchestra, saxophone, and car horns about "An American in" this country. A conservatory in this country twice expelled (\*) Maurice Ravel for continually failing to win its competitions. For ten points, name this home country of Claude Debussy and the Paris Conservatory.**

ANSWER: France

(5) **This civilization's thinkers developed a belief in material monism, the idea that all objects in the world are made of a single "first element." One such thinker from this civilization, (\*) Anaximenes [ah-nax-ih-men-ees], believed that that element was air; another thinker, Thales [thay-lees], believed it was water. For ten points, name this civilization whose natural philosophers from Miletus inspired its later schools, such as the Lyceum of Aristotle in Athens.**

ANSWER: ancient Greece (accept Miletus until it is read, but do not accept other specific Greek city-states)

(6) **This novel’s protagonist visits a grave near Brocklebridge Church fifteen years after her friend dies at Lowood School. This novel’s protagonist is locked up as a child by Sarah Reed and comforts her future husband after Grace Poole’s charge, (\*) Bertha Mason, burns down Thornfield Hall. For ten points, name this Charlotte Brontë novel in which the title woman marries Mr Rochester.**

ANSWER: Jane Eyre

(7) **The Well of Urd is one of three wells under this object, which is tended by the Norns. This object is ironically called “Odin’s horse,” and is home to Ratatoskr, a squirrel that carries messages between Nidhogg and an eagle who perches in the (\*) branches of this tree. For ten points, identify this enormous ash that stretches between the worlds of Norse mythology.**

ANSWER: Yggdrasil [IG-drah-zill] (accept World Tree before “world” is read)

(8) **This event may have happened to make room for the Domus Aurea. This event was blamed on early Christians, leading to their 64 CE persecution. According to Tacitus, this event began near the Palatine Hill while the (\*) emperor was in Antium. For ten points, name this disaster that destroyed a prosperous Italian city, legendarily while Nero either played a lyre or fiddled.**

ANSWER: Great Fire of Rome (accept descriptions like Rome burning)

(9) **George Gamow described this process via quantum tunneling. This behavior is exhibited by the first artificially-produced element, technetium. A sample undergoes this process over a timeframe called a (\*) half-life. A Geiger counter can detect, for ten points, what phenomenon exhibited by unstable elements like uranium, which emit alpha particles to become a different, more stable element?**

ANSWER: radioactivity (accept radioactive decay; accept word forms; accept alpha decay; prompt on “decay” before “alpha” is read, and accept “decay” after “alpha” is read)

(10) **A team in this city drafted Alge Crumpler, and this city’s NFL team lost a 2016 draft pick for piping in fake crowd noise at their home games. This city is building SunTrust Park in Cumberland for its baseball team, which spent 20 years in (\*) Turner Field. Freddie Freeman plays first base and Matt Ryan quarterbacks in, for ten points, what city, home to the Falcons and Braves and the 1996 Summer Olympics in the South?**

ANSWER: Atlanta

(11) **Pieter Bruegel made a painting of this type with *the Fall of Icarus*. The Barbizon school specialized in these paintings, like Millet’s *The Gleaners*. John Constable painted these works in Dedham (\*) Vale, including one of a hay wain by the river Stour. For ten points, name this style of painting, which feature wide views of forests, valleys, and other natural scenery.**

ANSWER: landscape

(12) **This body of water is home to Antelope Island, which becomes Antelope Peninsula when the water level dips too low. This body of water lies in what was, 30,000 years ago, Lake Bonneville. This body of water has no river outflows and only loses water via evaporation, causing its high (\*) salinity.** This body of water lies just west of Brigham City and northwest of a namesake state capital. For ten points, name this largest body of water in Utah.

ANSWER: Great Salt Lake (accept Salt Lake City after “capital” is read)

(13) **Because this quantity is conserved, perpetual motion machines of the first kind cannot exist. A capacitor stores this quantity in an electric field between its plates. The SI unit for this quantity is describes the work done when a force of one (\*) newton moves an object one meter.** For ten points, name this physical quantity that is measured in Joules and comes in kinetic and potential forms.

ANSWER: energy

(14) **A satirical work of this type by Ambrose Bierce claims that the French eat more bread than anyone else because “only they know how to make [wheat] palatable.” An American work of this type used twenty-six languages to establish etymologies, and was written by Noah (\*) Webster.** Lexicographers create, For ten points, what books that provide the pronunciations and definitions of words?

ANSWER: dictionary (accept dictionaries)

(15) **This current Chair of the Committee on Armed Services was shot down in 1967, then spent over five years in Hoa Lo, nicknamed the “Hanoi Hilton.” At one campaign stop, this man was booed for correcting an audience member who called his opponent, (\*) Barack Obama, an Arab.** For ten points, name this former prisoner of war during the Vietnam War, who has served five terms as Senator from Arizona.

ANSWER: John Sidney McCain III

(16) **In the first of the Three Woes of Revelation, these creatures appeared with scorpions’ tails and the power to torment nonbelievers for five months. With wild honey, these animals made up the diet of John the Baptist. These animals (\*) “darkened the land” after being called down by Moses, and consumed every growing plant in Egypt.** For ten points, name this winged family of grasshoppers known for swarming on crops.

ANSWER: locusts (accept Acrididae or Acrididaes; accept akris or akrides; accept arbeh; prompt on “grasshopper” before it is read; prompt on “insects”)

(17) **One of these devices, named for Chandrasekhar, detected X-rays from Sagittarius A\* [A-star] in 2000 after being deployed by the (\*) Columbia shuttle.** One of these devices, named for James Webb, will be launched into space in 2018. For ten points, name these astronomical instruments deployed in space and used for seeing long distances, such as the Hubble.

ANSWER: space telescopes (accept space observatories; accept descriptive answers, like telescopes in orbit or satellite telescopes)

(18) **In this city, a group of fascists led by Oswald Mosley clashed with police in the Battle of Cable Street. A photograph taken atop this city's *Daily Mail* building was titled "St. Paul's Survives." A speaker in this city claimed "we shall defend our (\*) Island, whatever the cost may be." Winston Churchill declared "we shall fight on the beaches" in, for ten points, what city's House of Commons, in the Parliament of the United Kingdom?**

ANSWER: London, England

(19) **Odd numbers are multiplied by this value then added to one in the Collatz conjecture's computation. This value is the smallest Mersenne prime and the second triangular number. An integer is divisible by this value if the (\*) sum of its digits is also divisible by this number. This value follows 1, 1, 2 in the Fibonacci sequence. For ten points, name this smallest odd prime number.**

ANSWER: three

(20) **This character is introduced by Stamford, and discovers that the mysterious Red Headed League is a cover for a plot to rob a bank. This character apparently dies in a scuffle at the (\*) Reichenbach Falls with his nemesis, Professor Moriarty. For ten points, name this detective created by Sir Arthur Conan Doyle, who resides at 221B Baker Street with John Watson.**

ANSWER: Sherlock Holmes (accept either underlined name)

## Bonuses

(1) The hero of this Old English poem steals a giant's sword from a witch's underwater lair, but its blade melts away when he beheads her. For ten points each,

Name this anonymously-authored epic poem, in which the title Geatish [ˈɡeɪt-ɪʃ] warrior defeats a monstrous descendant of Cain, and that monster's mother, to defend the mead-hall Heorot [ˈheɪ-oh-roht].

ANSWER: Beowulf

Name the monster that kills King Hrothgar's [hROTH-gahr's] men in his repeated raids on Heorot. Although swords do not pierce this monster's flesh, Beowulf rips off this creature's arm, and he bleeds to death.

ANSWER: Grendel

When Beowulf is summoned by Hrothgar to defend Heorot, the warrior Unferth tells the story of Beowulf winning a swimming contest against this son of Beanstan [BAY-an-stan], Beowulf's childhood friend.

ANSWER: Breca

(2) This painter depicted a faint light shining on Aristotle as he contemplates a bust of Homer in one work. For ten points each,

Name this painter who also used contrasting light-and-dark in *The Night Watch*, which is on display in Amsterdam.

ANSWER: Rembrandt van Rijn (accept either)

This 20th century artist advocated for neoplasticism, a form of abstract art that emphasized black, white, and primary colors with no shading, as seen in his *Broadway Boogie Woogie*.

ANSWER: Piet Mondrian

Though separated by centuries, Rembrandt and Piet Mondrian share this home nation. This country was the home of neoplasticism, an art movement also called *De Stijl* [steel].

ANSWER: the Netherlands (accept Dutch Republic)

(3) In 1978, Congressman Leo Ryan was killed at an airstrip in Port Kaituma, Guyana, shortly after leaving this compound. For ten points each,

Name this settlement where over 900 Americans died, many in “revolutionary suicide,” rather than let the Peoples Temple religious movement be stopped.

ANSWER: **Jonestown** (accept **Peoples Temple Agricultural Project**)

The mass suicide at Jonestown was carried out via barrels of this drink laced with cyanide. You can name either the actual brand of fruity drink mix used, or the more popular competitor that is often quoted as having been used there.

ANSWER: grape **Flavor Aid** (accept **Kool-Aid**)

Jonestown was built on this continent. A significantly less tragic American settlement on this continent was Henry Ford’s rubber plantation community, Fordlândia, which was built in the Amazon rainforest in the 1920s.

ANSWER: **South America**

(4) It can be difficult and costly to use real brands in fictional media, so movies and TV shows often create their own brands instead. For ten points each,

This corporation sells everything from rocket-powered roller skates to explosive tennis balls. Its best customer is probably Wile E. Coyote, who uses this company’s wares in his pursuit of the Road Runner.

ANSWER: **Acme** Corporation (accept **Acme** Rocket-Powered Products, Inc.)

This restaurant’s signature yellow delivery truck makes cameos in Pixar-animated films like *Wall-E* and *Monsters, Inc.*, and is even shown as a miniature wood carving in *Brave*. This restaurant made its first appearance in *Toy Story* as the location of the green aliens’ claw machine.

ANSWER: **Pizza Planet**

The search engine “Finder-Spyder” appears in dozens of shows, including *Dexter*, *Criminal Minds*, and this long-running procedural drama starring William Peterson and Marg Helgenberger, with spin-offs set in New York and Miami.

ANSWER: **CSI**: Crime Scene Investigation (accept **CSI** New York or **CSI** Miami)

(5) The polyps that form these structures are symbiotic with photosynthetic zooxanthellae [zoo-zanth-ell-ee], which provide the polyps with vital carbon and striking color. For ten points each,

Name these highly diverse aquatic ecosystems. Rising ocean temperatures threaten the health of these systems, which become “bleached” in stressful environments.

ANSWER: coral reefs (accept additional information; prompt on coral)

As the sea level falls, a ring-shaped barrier reef will trap a lagoon separated from the rest of the ocean, creating one of these structures. These island-sized structures are mostly found in the Pacific.

ANSWER: atoll

This English naturalist proposed the formation process of atolls during a 19th century voyage on the HMS *Beagle*. His other work on that voyage concerning natural selection was published in *On the Origin of Species*.

ANSWER: Charles Darwin

(6) This biblical figure’s killer carried his head to Jerusalem after cutting it off with this man’s own sword. For ten points each,

Name this gigantic Philistine who was killed by the youngest son of Jesse.

ANSWER: Goliath of Gath

This man earned the jealous anger of King Saul by defeating many Philistines, beginning with Goliath. This man later succeeded Saul as King of Israel and was the father of Solomon.

ANSWER: King David (accept Daweed)

This prophet and adviser to King Saul helped protect David from Saul’s many attempts to have him killed. This Judge of Israel anointed both King Saul and King David.

ANSWER: Samuel (accept Shmuel)

(7) This author wrote *Jo’s Boys* as a sequel to a novel about students at Plumfield School and their siblings, including Demi and Daisy, Rob and Teddy, and Bess. For ten points each,

Name this author, whose novels *Little Women* and *Little Men* follow the youth and young adulthood of the Plumfield children’s parents and teachers.

ANSWER: Louisa May Alcott

Demi and Daisy are the twin children of this demure, eldest March sister, who is introduced in *Little Women* with her sisters Jo, Beth, and Amy.

ANSWER: Margaret “Meg” March (accept either underlined name; accept Margaret Brooke or Meg Brooke)

Rob and Teddy are Jo’s children with this German teacher, who also raises his orphaned nephews, Emil and Franz Hoffman, at Plumfield.

ANSWER: Professor Friedrich “Fritz” Bhaer (accept any underlined name)

(8) Facilities contaminated with this disease, which presents with skin infections and boils, are often intensely “scrubbed” to prevent further infection. For ten points each,

Name this difficult-to-treat disease, a *staph* infection that first became prevalent as a hospital-acquired infection.

ANSWER: **MRSA** [”mersah”] (accept **methicillin-resistant Staphylococcus aureus**)

MRSA, as the name says, is resistant to methicillin, one of these drugs that attack bacteria. A patient prescribed a course of these drugs is stressed to finish the entire course to completely kill off the bacteria.

ANSWER: **antibiotics**

Alexander Fleming discovered this early antibiotic by studying a mold that contaminated a dish of staphylococcus.

ANSWER: **penicillin**

(9) Kenneth Arrow’s book *Social Choice and Individual Values* outlined a proof that certain systems for deciding these events via a “ranked order” system cannot meet a certain set of fairness criteria. For ten points each,

Name this civic duty which is often done in a “single winner” system, where a citizen selects one candidate from a given ballot of options.

ANSWER: **voting** (accept **electing**; accept word forms, like **elections**)

This plurality voting system is used almost universally throughout the United States. In it, the candidate who receives the most votes wins. Its four-word name evokes the idea of a horse race.

ANSWER: **first-past-the-post** (prompt on FPTP)

It is very easy to manipulate the results of a first-past-the-post election via this practice of drawing specific, often misshapen boundaries for voting districts.

ANSWER: **gerrymandering**

(10) This city led the Italian League during the Lombardy Wars, including at the Battle of Anghiari, where only a single soldier was killed. For ten points each,

Name this Italian city-state, a Tuscan republic that suffered internal strife between the Ghibellines and Guelphs in the 13th century. Savonarola organized the 1497 Bonfire of the Vanities in this city.

ANSWER: Republic of **Florence**

This family took political control of Florence in the 15th century under the wealthy Cosimo. Other members of this family include a French queen named Marie, and Lorenzo the Magnificent.

ANSWER: **Medici** family (accept de **Medici**)

The Medici family included four people who held this religious position, including Lorenzo the Magnificent’s son Giovanni, who took the name Leo X [tenth].

ANSWER: **Pope** (accept **Bishop of Rome**)

(11) Name some literary kings who meet their fates because of family tragedies, for ten points each.

In fictional histories by Geoffrey of Monmouth and Sir Thomas Mallory, this king's nephew, Mordred, takes over the throne and kills this king when he returns to Camelot after battling Sir Lancelot over the love of Queen Guinevere.

ANSWER: King **Arthur** Pendragon

One of Shakespeare's histories begins with this deformed king bitterly declaring that "now is the winter of our discontent / made glorious summer by" his brother, Edward IV ["the fourth"]. This man usurps the throne, only to be killed by his cousin, Henry VII ["the seventh"], at the Battle of Bosworth Field.

ANSWER: King **Richard III** of York (prompt on "Richard")

This king gouges out his eyes after learning that he has accidentally killed his father and married his mother in a play by Sophocles.

ANSWER: **Oedipus** Rex (accept **Oedipus** the King or King **Oedipus**)

(12) For ten points each, answer the following about mathematical estimation.

In statistics, information about the population can be estimated by polling a small subgroup of the population, known by this term. The accuracy of the estimate will increase as the size of this group increases.

ANSWER: **sample**

This ancient Greek mathematician estimated the value of pi with great accuracy by bounding a circle within circumscribed and inscribed polygons of known perimeter. He also explained how levers work, noting "Give me a place to stand and I will move the Earth."

ANSWER: **Archimedes**

This physicist, who created the world's first nuclear reactor in Chicago in 1942, commonly made broad estimates, such as of the number of hairs on a head or of piano tuners in a major city. Those estimates used clever dimensional analysis in a problem solving technique often named for this man.

ANSWER: Enrico **Fermi** (accept **Fermi** estimation, **Fermi** problems, etc.)

(13) Colonists in New Sweden are believed to have introduced these structures to North America. For ten points each,

Name these somewhat-movable structures, popular in the 18th and 19th century American frontier. Abraham Lincoln's upbringing in this type of house inspired a popular children's toy.

ANSWER: log cabin (prompt on cabin; prompt on "Lincoln Logs")

This U.S. President was called the "log cabin and hard cider candidate" by his Whig supporters. He also used the slogan "Tippecanoe and Tyler too" during his 1840 Presidential campaign, which lasted longer than his actual presidency.

ANSWER: William Henry Harrison

This 20th century politician acknowledged his privileged upbringing in Illinois by noting "I wasn't born in a log cabin[...]and there's no use trying to pretend I did." He lost two Presidential elections to Dwight Eisenhower.

ANSWER: Adlai E. Stevenson II

(14) Beautiful mortals often met with bad ends in Greek myth. For ten points each,

This goddess started the Trojan War by promising Paris the love of a Spartan queen. In exchange for that promise, Paris awarded a golden apple to this Greek goddess of love and beauty.

ANSWER: Aphrodite (do not accept "Venus")

This extraordinarily beautiful wife of Menelaus was abducted by Paris, inciting the Trojan War and making this woman "the face that launched a thousand ships."

ANSWER: Helen of Troy (accept Helen of Sparta; accept Helene)

This mortal lover of Aphrodite became synonymous with male beauty. In Ovid's *Metamorphoses*, this man is killed by a wild boar, and Aphrodite turns his blood into anemone flowers.

ANSWER: Adonis

(15) When this force is in balance with gravity, a falling object is at terminal velocity. For ten points each,

Name this force that opposes movement through air or other fluids.

ANSWER: drag (accept air resistance or fluid resistance; prompt on resistance)

For objects at low speeds, drag can be computed with Stokes' Law by approximating objects as these shapes. According to that approximation, drag is proportional to pi times the radius of this shape.

ANSWER: sphere (do not accept circle)

Drag is sometimes reduced when the surrounding fluid is undergoing this behavior, in which inertial forces dominate viscous ones. This behavior is commonly experienced by airplanes in "rough" skies.

ANSWER: turbulence (accept word forms; accept elaborations like turbulent flow)

(16) One of these instruments was “prepared” by a 20th century composer by placing rubber bands, bolts, and other objects on its strings; as keys were pressed, the objects fell and hit the soundboard. For ten points each,

Name this musical keyboard instrument, which is already exceptionally versatile due to its 88-key range.

ANSWER: (prepared) pianoforte

This American composer of 4'33" [four minutes thirty-three seconds] made heavy use of prepared piano, as well as radios and other non-traditional musical instruments, in his works.

ANSWER: John Cage

Cage's 4'33" is an experimental piano work consisting entirely of this “musical” concept. Cage was inspired to write the piece after experiencing an anechoic [an-ekko-ic] chamber.

ANSWER: silence (accept any description of the musician making no sound; accept descriptions of the music being just the ambient noise of the audience, etc.)

(17) For ten points each, give the following about the east coast of Massachusetts.

This capital city dominates the coast of Massachusetts Bay.

ANSWER: Boston

South of Cape Cod are two large islands, popular with tourists: Nantucket and this island, where a high rate of hereditary deafness led to the creation of a unique sign language. William Labov studied the spoken dialect of people on this island in the 1960s.

ANSWER: Martha's Vineyard

This “island” on the eastern edge of Martha's Vineyard is often a peninsula, depending on sea level. In July 1969, Senator Ted Kennedy drove off a bridge on this island, causing Mary Jo Kopechne to drown.

ANSWER: Chappaquiddick Island (accept Chappaquiddick incident, etc.)

(18) This class of organic compounds is defined by having a hydroxyl group, or an oxygen bonded to a hydrogen. For ten points each,

Name this class of compounds that includes C<sub>2</sub>H<sub>5</sub>OH, known as ethanol.

ANSWER: alcohols

Methanol, or wood alcohol, has a molecular form with this many carbon atoms. In organic chemistry, an atom of hydrogen can only bond with this many other atoms at a time, because it only has this many electrons in its neutral state.

ANSWER: one

Don't drink wood alcohol. The body metabolizes it into methanal [meth-an-al], better known as an embalming agent by this name. This carcinogenic compound will then metabolize into formic acid, which will make you blind.

ANSWER: formaldehyde (accept formalin)

(19) This English Romantic poet wrote that he would “build a fane / in some untrodden region of [his] mind” in a poem addressed to Psyche. For ten points each,

Name this poet who wrote about being taken to an “elfin grot” by “La Belle Dame Sans Merci,” and about a “still unravished bride of quietness” in another poem about an urn.

ANSWER: John Keats

Keats’s poems to Psyche and “on a Grecian Urn” are this type of poem, which is divided into a strophe, antistrophe, and epode.

ANSWER: odes

”Ode on a Grecian Urn” claims that “all ye need to know” is that “beauty is [this] and [this is] beauty.” In a sonnet by Shakespeare, the speaker declares that his love is not made of this quality, since “I know she lies.”

ANSWER: truth

(20) The 1962 Évian Accords provided for a ceasefire in this country and, four months later, a vote for independence. For ten points each,

Name this North African country where Ahmed Ben Bella and the FLN used terrorism and guerrilla warfare against its colonial European rulers.

ANSWER: Algeria

Algeria broke away from this European country. In the midst of independence, roughly one million  *pied-noirs*  [ped-nwar] fled Algeria for this country, which was grossly unprepared for the exodus, causing refugees to sleep in the streets of coastal cities like Marseilles [mar-sigh] and Toulon [too-lone].

ANSWER: France

This French President and leader of Free France during World War II accepted Algerian independence, after which he was targeted by numerous assassination attempts. He survived one attempt when his Citroën car was able to escape with multiple flat tires.

ANSWER: Charles de Gaulle