

Round 1

Tossups

(Tossup 1) One theory states that this force is carried by massless, spin two bosons. Waves created by this force were detected by the LIGO experiment. The theory of relativity states that this force is a distortion of spacetime and not a unique force. This force is 9.8 meters per second squared on Earth's surface. For the point, name this force that pulls objects toward the Earth.

ANSWER: gravity

(Tossup 2) In a play by this author, Beatrice and Benedick engage in a “merry war” of words that appears driven by spite but still ends with their marriage. Mistress Ford and Mistress Page are among the title characters of a play by this author who hide their admirer, Falstaff, in a basket of laundry. For the point, what playwright from Stratford-upon-Avon, England wrote *The Merry Wives of Windsor* and *Much Ado About Nothing*?

ANSWER: William Shakespeare

(Tossup 3) The *Allegro* movement of this work's opening piece is accompanied by a description of a “brilliant canopy,” ending a sonnet written by the composer. This work is part of *The Contest Between Harmony and Invention* and includes depictions of a shepherd, hunters, and people slipping on ice. For the point, name this collection of four violin concertoes by Antonio Vivaldi that includes “L'inverno” and “La Primavera,” or “Winter” and “Spring.”

ANSWER: The Four Seasons (accept Le quattro stagioni; accept The Contest Between Harmony and Invention before mentioned)

(Tossup 4) The 2 by 2 matrix with entries “cosine theta, negative sine theta; sine theta, cosine theta” can be used to perform one of these transformations. Translations and these transformations are the two kinds of rigid motions possible on the Euclidean plane. A ray can change directions if it is reflected or if this transformation is done with a 180 degree angle. For the point, name this type of motion in which an object turns.

ANSWER: rotation (prompt on “turning”)

(Tossup 5) Flooding along this river is controlled by the Kennet and Aval Canal and the Grand Union Canal. This river's estuary is home to the Canvey Island and the Isle of Sheppey. This river was the location of the Great Stink of 1858. Cities along this river include Swindon and Oxford. The Tower Bridge crosses, for the point, what river that flows into the North Sea after passing through London?

ANSWER: Thames

(Tossup 6) During a debate, this politician was attacked by Senator Harris for his positions on bussing. As Chairman of the Judiciary Committee, this politician oversaw the Clarence Thomas hearings. The death of his son Beau stopped this politician from running for president in 2016. For the point, name this politician who is currently seeking the Democratic nomination for president, who served as Obama's Vice President.

ANSWER: Joe Biden

(Tossup 7) Near the start of a novel set in this city, Pierre Gringoire [gran-wahr] obtains viewership for one of his plays while a mob parades the ugliest man in this city as the Pope of Fools. Claude Frolo serves as an archdeacon in this city, where he hangs Esmeralda before being killed by his ward, Quasimodo. For the point, name this setting of Victor Hugo's *The Hunchback of Notre-Dame*.

ANSWER: Paris

(Tossup 8) Versions of these structures created by the Sumerians supported temples and were called ziggurats. The site of Chichen Itza in modern Mexico contains several of these structures built from stone in a stepped style by the Mayans. The most famous versions of these structures were once covered in white limestone to reflect sunlight. For the point, name these geometric structures that ancient Egyptians built in sites like Giza.

ANSWER: pyramids (accept ziggurats before it is read)

(Tossup 9) After mammalian red blood cells lose these organelles, they gradually lose the rest of their organelles as well. These organelles contain a namesake envelope which is passed through by mRNA through pore complexes. Chromatin is found in these organelles. For the point, name this organelle that contains a cell's genome, sometimes called the cell's "control center."

ANSWER: nucleus (accept nuclei)

(Tossup 10) This god's daughter, Kebechet, served to "refresh and purify" as the embodiment of embalming fluid. This god was syncretized with Hermes during the Hellenic period in Egypt, and in the Hall of Two Truths, this god used the feather of Ma'at to weigh the hearts of the dead. For the point, name this Egyptian god of embalming and judge of the dead who had the head of a jackal.

ANSWER: Anubis (accept Anpu or Inpu; accept Hermanubis)

(Tossup 11) In an attempt to break a monopoly on this commodity, Justinian the Great supposedly sent two monks to steal some eggs. Empress Leizu legendarily started creating this commodity after she unraveled a cocoon while trying to get a certain creature out of her drink. China had a monopoly on this resource which is created by namesake "worms." For the point, name this valuable textile that names a trade route between the Han Dynasty and the Roman Empire.

ANSWER: silk

(Tossup 12) This river meets the Rock River near the “Quad Cities,” which include Moline and Davenport. Minneapolis and St. Paul are the only cities to lie on both sides of this river. The most populous city along this river is Memphis. The Missouri River joins with this river just north of St. Louis. New Orleans is the end point of, for the point, what longest river in the United States?

ANSWER: Mississippi River

(Tossup 13) Near the start of this novel, captain Robert Walton encounters an emaciated stranger stranded on an ice floe. While studying at the University of Ingolstadt, this novel’s protagonist tries to reveal his creation to Henry Clerval, only to find it has escaped. In this novel, an unnamed creature strangles Elizabeth Lavenza to torment its creator, Viktor. For the point, name this novel by Mary Shelley in which the title scientist creates a humanoid monster.

ANSWER: Frankenstein; or, the Modern Prometheus

(Tossup 14) While on Mount Song, Bodhidharma performed this action for nine years. The Lankavatara Sutra promotes zazen, a form of this practice that can be performed in padma-asana or lotus position. Gautama Buddha performed this action under the Bodhi tree to achieve enlightenment. For the point, name this reflective religious action that is used in modern times to promote mindfulness through reflection.

ANSWER: meditation (accept word forms like meditate or meditating; accept wall-gazing until “zazen” is mentioned; prompt on “yoga”)

(Tossup 15) Adding solutes to a solution increases the point at which a certain form of this process occurs. Above the critical point, the rate of this process reaches zero. The ratio of temperature to humidity is proportional to the rate of this process. One form of this process occurs when the partial pressure is equal to the vapor pressure. For the point, name this process by which a liquid becomes a gas.

ANSWER: evaporation (accept boiling; accept vaporization)

(Tossup 16) This instrument names the third symphony by Camille Saint-Saëns. Dieterich Buxtehude’s skill on this instrument was so great that Johann Sebastian Bach walked over 250 miles to hear him play. Manuals, stops, and a pedalboard are manipulated to play this instrument, which uses pressurized air to create sound. For the point, name this large keyboard instrument that is typically installed in stadiums and churches.

ANSWER: pipe organ

(Tossup 17) When these structures form beneath glaciers they are known as tuyas. In addition to canyons, these structures also form coulees. These structures release substances that can be classified as pahoehoe and a’a. These structures can form above hot spots and around the ring of fire. These structures sit on top of magma chambers. For the point, name these mountains that erupt ash and lava.

ANSWER: volcanoes (prompt on mountains)

(Tossup 18) These figures have eccentricities greater than 1 and can be formed by a plane which intersects with both parts of a double cone. The asymptotes of these curves have a slope of b/a where b and a are obtained from their canonical forms. The graph of “ y equals one over x ” is one of these shapes. For the point, name these conic sections which contain two separate branches.

ANSWER: hyperbola

(Tossup 19) A poem by this author states that when “the great star early droop’d in the western sky in the night, / I mourn’d.” In another poem, this man said that “our fearful trip is done; / The ship has weather’d every rack, the prize we sought is won,” even though the title character has “fallen cold and dead.” For the point, name this author who eulogized Abraham Lincoln in his poems “When Lilacs Last in the Dooryard Bloom’d” and “O Captain! My Captain!”

ANSWER: Walt(er) Whitman

(Tossup 20) This man controversially agreed to make *The Birth of a Nation* the first film screened at the White House. During one election, this man defeated Republican Charles Hughes with a campaign that focused on how he kept American out of war. This politician outlined his Fourteen Points and advocated for the League of Nations during negotiations for the Treaty of Versailles. For the point, name this President who led the United States through World War I.

ANSWER: Woodrow Wilson

(Tossup 21) This country’s northeast is home to Manipur and Nagaland, both of which have Christian majorities. This country’s Gujarat state is home to Gir National Forest, where the last Asiatic lions live. This country’s most populous states are Maharashtra and Uttar Pradesh and its major cities include Chennai and Calcutta. Mumbai is the largest city in, for the point, what country with capital New Delhi?

ANSWER: India

(Tossup 22) A boy in this novel narrates the plot of the movie *Dracula* to impress his neighbors while he stays for the summer with his Aunt Rachel. This novel’s protagonist witnesses the wrongful trial of Tom Robinson and investigates the home of Boo Radley with Dill Harris while living in Maycomb, Alabama with her brother, Jem, and her father, Atticus. For the point, name this novel by Harper Lee about the childhood of Scout Finch.

ANSWER: To Kill a Mockingbird

(Tossup 23) In the prelude to this battle, Joseph Hooker was relieved from command and replaced with George Meade. Union forces during this battle fortified Cemetery Ridge. During this battle, one side reached the “high-water mark of the Confederacy” as part of a charge led by George Pickett. Abraham Lincoln gave a namesake address in the aftermath of, for the point, what 1863 battle, the turning point of the Civil War?

ANSWER: Battle of Gettysburg

(Tossup 24) The model organism *Xenopus* is a member of this class and is studied due to its translucent stomach during development. They aren't reptiles, but these animals have a three-chambered heart. The axolotl is a member of this class which never loses its gills. Salamanders and frogs are members of, for the point, what class of animals that generally transition from water-based to land-based life?

ANSWER: amphibians (accept amphibia)

(Tossup 25) The Condorcet Method for this activity always produces the pairwise champion. In 2018, Maine adopted the ranked choice form of this activity. In Australia and Brazil, participation in this activity is mandatory. Poll taxes and literacy tests were used in the Jim Crow-era South to restrict this activity among black voters. For the point, name this activity in which citizens participate in elections.

ANSWER: voting (accept elections before read)

(Tossup 26) A Paul Gauguin painting titled for a *Painter of* these objects depicts Vincent van Gogh in his studio. Georgia O'Keeffe's paintings *Red Canna* and *Jimson Weed* depict these objects. Claude Monet made a series depicting these objects under a Japanese bridge, floating on a pond. For the point, name these plants depicted in Monet's *Waterlilies* and John Sargent's *Carnation, Lily, Lily, Rose*.

ANSWER: flowers (accept Painter of Sunflowers until "Canna" is mentioned; prompt on plants until mentioned)

(Tossup 27) This literary character is attacked by a Pigeon who mistakes her for a serpent after she receives a mushroom from a Caterpillar. This character hears a story told by a Dormouse at a tea party hosted by a Mad Hatter after following directions given to her by a disappearing Cheshire Cat. For the point, name this girl, the title character of a novel by Lewis Carroll about her *Adventures in Wonderland*.

ANSWER: Alice (accept Alice's Adventures in Wonderland)

(Tossup 28) This body's crust has collapsed in the Valles Marineris. This body's equator is home to the Tharsis volcanic plateau. *Opportunity* and *Curiosity* are rovers placed on this body. Olympus Mons is the highest point on this body. This planet is separated from Jupiter by the Asteroid Belt. For the point, name this 4th planet from the sun, also known as the "red planet."

ANSWER: Mars

(Tossup 29) In the *Aeneid*, Virgil describes one of these creatures named Pyracmon polishing the armor of Athena. Three of these creatures named Argos, Brontes, and Steropes gave Zeus his lightning bolts. Odysseus tricked one of these creatures, Polyphemus, by hiding his men under the bellies of Polyphemus's sheep before blinding him with a single stab. For the point, name these mythical, one-eyed humanoid creatures.

ANSWER: cyclops (accept cyclopes)

(Tossup 30) This country lost an 8-year long war with the FLN that was ended by the Evian Accords. This country, which lost control of Algeria in 1962, withdrew from NATO in 1966. A leader of this country was forced to flee its capital after the May 1968 students protests. During World War II, the “free forces” from this country were led by Charles de Gaulle. For the point, name this country where Nazi forces occupied Paris.

ANSWER: France

Replacements

(Tossup 31) The triple alpha process terminates with this element. The first ever superfluid was created from this element below the lambda point. The alpha particle is equivalent to the nucleus of this element. This element is the second most abundant in the universe and the second lightest. For the point, name this element, the second one on the periodic table, symbolized He.

ANSWER: helium (accept He before it is read)

(Tossup 32) This agreement was labeled a “death sentence” by the Zapatistas who subsequently declared war the day it went into effect. During the Election of 1992, Ross Perot claimed that this agreement would create a “giant sucking sound going south.” George H.W. Bush, Carlos Salinas de Gortari, and Brian Mulroney negotiated, for the point, what 1994 international trade agreement between the United States, Mexico and Canada?

ANSWER: NAFTA (accept North American Free Trade Agreement; accept Tratado de Libre Comercio de America del Norte; accept TLCAN; accept Accord de Libre-Echange Nord-Americain; accept ALENA)