



1. This lake is composed of two sub-basins connected by the Strait of Tiquina. Its single outlet is the Rio Desaguadero, which flows into Poopo Lake. A number of natives live on the artificial reed islands in it known as the Uros. This lake is located at the northern end of the Altiplano basin. Although Lake Maracaibo has a larger surface area, this lake is the largest in South America by volume. For 10 points, what lake on the border of Peru and Bolivia is the highest commercially navigable lake in the world?

ANSWER: Lake **Titicaca**

147-11-44-12101

2. In one of this author's stories, a group of Mormons force John Ferrier to convert and kidnap Lucy, the love of Jefferson Hope. In that story, Hope uses his own blood to write the word "RACHE," German for revenge. This author created Inspector Lestrade in "A Study in Scarlet," also the first story featuring a character who later falls off Reichenbach Falls with his nemesis, Professor Moriarty. This author's most famous creation lives at 221B Baker Street with Dr. Watson. For 10 points, name this author who created Sherlock Holmes.

ANSWER: Arthur Conan **Doyle**

080-11-44-12102

3. This element is bonded to carbon in a synthetic polymer used as a non-stick coating for cookware. That polymer is Teflon and uranium is enriched in a process in which it is bonded to four atoms of this element. When this element is ionically bonded to hydrogen, it creates a compound so caustic it can eat through glass. This element has the highest electronegativity. For 10 points, name this element that prevents tooth decay and has chemical symbol F.

ANSWER: **fluorine**

066-11-44-12103

4. This author used his experience as a homosexual to write about a man who falls in love with Alec Scudder after Clive Durham chooses a conventional marriage. In another work by this author of *Maurice*, Lucy Honeychurch falls in love with the lower-class George Emerson while on vacation in Italy. This author wrote another work in which Adela Quested wrongly accuses the Indian Dr. Aziz of raping her in the Marabar Caves. For 10 points, name this British author of *A Room with a View* and *A Passage to India*.

ANSWER: Edward Morgan **Forster**

080-11-44-12104

5. In onions, this organelle contains allinases which are responsible for forming the chemical that causes tears. Strontium and cobalt can be sequestered within these organelles, which maintain osmotic equilibrium by pumping potassium. The tonoplast surrounds one of these organelles, which contain the "cell sap". That is the central one of these, which is responsible for turgor pressure, which maintains the shape and structure of plant and bacteria cells. For 10 points, name this water-filled organelle.

ANSWER: **vacuole**

066-11-44-12105

6. Castlereagh's suicide led to this man becoming the British representative to the Congress of Verona. Despite the opposition of George IV, this prime minister got the Catholic Relief Act passed to help out Catholic Emancipation. This man's victory at the Battle of Vittoria helped bring an end to the Peninsular War. For 10 points, what British prime minister was earlier a general who was victorious at the Battle of Waterloo?

ANSWER: Arthur Wellesley, 1st Duke of **Wellington** [or Arthur **Wellesley**]

030-11-44-12106

7. This scientist postulated the existence of "adaptor molecules" later discovered to be transfer RNA, and he also advanced the theory of panspermia. This man first stated the principle which claims that the transfer of information flows between DNA and RNA to protein, known as the central dogma. This man's partner saw Photo 51, an X-ray diffraction image taken by Rosalind Franklin of a certain molecule. For 10 points, identify this man who elucidated the double helix structure of DNA with James Watson.

ANSWER: Francis **Crick**

066-11-44-12107

8. Battles fought here include one in which the Syrians' Antiochus III fell to Romans under Manius Acilius Glabrio in 191 BCE. Another battle at this location occurred during the Third Sacred War between Philip II of Macedon and the Phocians. The most famous battle to take place here ended after Ephialtes showed invaders the goat path known as the Anopaea Pass in 480 BCE. For 10 points, name the "hot gates" where Greeks, including three hundred Spartans under Leonidas, were ultimately defeated by Xerxes' Persian forces.

ANSWER: Battle of **Thermopylae**

147-11-44-12108

9. In a fit of rage, this man threw a spear at his son, Jonathan. This man disobeyed the word of God by failing to exterminate the Amalekites. He was chosen after his father, Kish, sent him to look for his lost donkeys. This king asked the Witch of Endor to summon the prophet Samuel, who had anointed him. He offered his armor to a young hero, of whom he soon grew jealous after that hero slew Goliath. For 10 points, name this first king of Israel, who fell from God's graces and tried to kill David.

ANSWER: **Saul**

080-11-44-12109

10. The first movement of Mahler's third symphony begins with these instruments playing the theme alone. This instrument also plays the opening theme of *Till Eulenspiegel's Merry Pranks*. A trio of these instruments represents the second title character of Strauss's *Peter and the Wolf*. Despite being a brass instrument, one of them can be found in most wind quintets. For 10 points, name this instrument, whose valves are played with the left hand while the player's right hand is in the bell.

ANSWER: French **horn** [do not accept "English horn"]

142-11-44-12110

11. In computer science, this term can refer to a one-dimensional array. Images created with them use geometric primitives instead of bitmaps. In biology, this term describes an agent that transfers some sort of material, such as a mosquito transmitting malaria. In math, the dot product and cross product operators can be used on two of these objects. For 10 points, name this term that in physics refers to a quantity with both magnitude and direction, as opposed to scalars.

ANSWER: **Vectors**

147-11-44-12111

12. This character is given a ride across the waters of death by the ferryman Urshanabi. He seeks the secret of eternal life from the flood survivor Utnapishtim. This character is described as one third man and two thirds god. He antagonizes the goddess Ishtar by killing the Bull of Heaven, causing a disease to kill his best friend, the wild man Enkidu. For 10 points, name this King of Uruk, the hero of a Mesopotamian epic inscribed on twelve tablets.

ANSWER: **Gilgamesh**

015-11-44-12112

13. This civilization's moon goddess was sometimes depicted holding a rabbit and was once thought to be conflated with a goddess of midwifery named Ixchal. Their rain deity, often shown with reptilian features, was named Chaac, while one of their stories concerns Hunahpu and Xbalanque, the Hero Twins. Their story is contained in the Popul Vuh. For 10 points, name these Mesoamerican peoples who inhabited Copan and Chichen Itza.

ANSWER: **Mayans**

040-11-44-12113

14. This function is equal to the real part of the complex number e raised to the i times x . When converting from polar to Cartesian coordinates, x is equal to r times this function of θ . The law of this function is used to calculate the side length of a triangle when the angle opposite it is known. This function is positive one at zero. For 10 points, name this function of an angle equal to the length of the adjacent side divided by the hypotenuse, often contrasted with sine.

ANSWER: **cosine** [do not accept **sine**]

066-11-44-12114

15. This work describes a boat race won by Cloanthus and a foot race won by Euryalus. The Cumaean Sybil aids the protagonist in his journey to the underworld, where he meets his father and the Carthaginian queen who killed herself after he abandoned her. In this poem, the title character is the son of Anchises and lover of Dido, to whom he recounts the destruction of his native Troy. For 10 points, name this Latin epic written by Virgil about the legendary founder of Rome.

ANSWER: **Aeneid**

014-11-44-12115



1A. What measurement of a stellar object's brightness allows true comparisons between two object's brightness and is equivalent to the apparent magnitude of an object if it were 10 parsecs away from an observer?

ANSWER: **absolute** magnitude

1B. What structure on the Colorado River created the Lake Mead reservoir?

ANSWER: **Hoover Dam**

2A. In Ancient Greek and Latin, what grammatical case is used to address someone directly by name?

ANSWER: **vocative** case

2B. This is a 10-second calculation question. What is the volume of a cube with surface area 96 square units?

ANSWER: **64** cube units

3A. This is a 10-second calculation question. How many ways can one choose three coins from a set of four if order matters?

ANSWER: **24**

3B. In what Charles Dickens work is the title character adopted by Mr. Brownlow after Fagin unsuccessfully tries to train him as a pickpocket?

ANSWER: **Oliver Twist**

4A. What country was allegedly behind the plot to kill Adel Al-Jubeir, the Saudi ambassador to the United States?

ANSWER: Islamic Republic of **Iran**

4B. What television show, whose title twins are Hank and Dean, also features the characters Dr. Girlfriend, The Monarch, Billy Quizboy, and Brock Samson?

ANSWER: *The* **Venture Bros.**

5A. The Khmer Empire, which built Angkor Wat, was centered in what modern-day nation?

ANSWER: Kingdom of **Cambodia** [or Preahreacheanachakr **Kampuchea**]

5B. Name the small independent kingdom found on the eastern part of South Africa, which also borders Mozambique.

ANSWER: Kingdom of **Swaziland** [or **Umbuso Weswatini**]

6A. This is a 20-second calculation question. What is the population variance of the set {8, 4, 1, 3} in simplest form?

ANSWER: **13/2** [or **6.5**]

6B. This is a 20-second calculation question. What is the height of an equilateral triangle with side length 2?

ANSWER: square **root** of **3** [or **1.73**]

7A. What poetic meter features lines consisting of five feet each composed of an unstressed syllable followed by a stressed one?

ANSWER: **iambic pentameter**

7B. What rule states that electrons will fill orbitals of equal energy singly before filling them in pairs to achieve the greatest spin.

ANSWER: **Hund's** rule of maximum multiplicity

8A. Give the microeconomic term for the lost benefit of performing some other activity with the time, money, or resources used to pursue a second option.

ANSWER: **opportunity cost**

8B. Name the Harvard Law professor and consumer protection advocate who announced in September 2011 that she would run against Scott Brown for a US Senate seat in Massachusetts.

ANSWER: Elizabeth **Warren**

9A. This is a 30-second computation question. If 6-foot-tall Bobby casts a 4-foot-long shadow. How far should he stand away from a 30-foot-high flagpole so that the tip of his shadow and the flagpole's shadow overlap?

ANSWER: **16 feet**

9B. This is a 30-second calculation question. What is the cosine of 15 degrees?

ANSWER: square **root** of **2 plus** square **root** of **6** all over 4 [or $\frac{\sqrt{2}+\sqrt{6}}{4}$]

10A. What plant tissue transports water throughout a plant?

ANSWER: **xylem**

10B. What name is given to verbs, like the French *se laver* (la-VEY) and the Spanish *ponerse* (poh-NAIR-say), where the subject acts upon him- or herself?

ANSWER: **reflexive** verbs



1. The machine epsilon is the smallest number this representation can have. In the most common standard for them addition is not associative and there is a negative zero. In that standard it is also possible for a value to be infinite or Not a Number. That standard is IEEE (Eye triple-E) 754. The 64-bit versions of these are often called doubles. For 10 points, name this computer representation of numbers with decimal points. ANSWER: **floating point** number [or **float**; or **double** before mentioned; or **IEEE 754** before mentioned]

093-11-44-12117

2. In one of his man's poems, the title creature eats a group of mimes. This author of "The Conqueror Worm" described the title subject as "a true daughter of old time" in his "Sonnet: to Science." He described the tintinnabulation of the title objects in "The Bells," and he described a lover who lived "in a kingdom by a sea" in "Annabel Lee." The title character of another of his poems repeats the word "Nevermore." For 10 points, name this American poet of "The Raven."

ANSWER: Edgar Allan **Poe**

079-11-44-12118

3. In the second book of a trilogy, this author presents a proof of squaring the circle along with discussions on logic and physics. In another work, he describes the reasons for the collapse of the Commonwealth and General Monck's occupation of London. This man's most famous work posits that in a natural state humans exist in a war of all against all, and states that "life is poor, nasty, brutish, and short." For 10 points, name this English philosopher and author of *De Corpore* and *Leviathan*.

ANSWER: Thomas **Hobbes**

135-11-44-12119

4. One of this man's theories was confirmed by Arthur Eddington's observations during a total solar eclipse. That theory of this man draws an analogy between gravity and an accelerating reference frame. A previous theory of his, which requires an inertial frame, predicts length contraction and time dilation for objects moving near the speed of light. For 10 points, name this man who formulated general and special relativity, the latter of which implies his statement that E equals $m c$ squared.

ANSWER: Albert **Einstein**

132-11-44-12120

5. In one work, this poet quoted his friend Guido Cavalcanti and mixed poetry with prose in describing his love for a member of the Portinari family. This author of *La Vita Nuova* also wrote a poem in which he encounters Ugolino lodged in ice and enters the city of Dis. In the final portion of that poem, this poet is guided through nine spheres by Beatrice, though in the first portion he is guided by Virgil through Hell. For 10 points, name this Italian poet of *The Divine Comedy*.

ANSWER: **Dante** Alighieri [or Dante **Alighieri**]

014-11-44-12121

6. An integer multiplied by this quantity is equal to two times the lattice spacing times the sine of the angle of incidence according to Bragg's law. This quantity for a photon can be found by dividing Planck's constant by linear momentum. That relationship was first put forth by de Broglie, who names the form of this quantity for matter. This quantity is equal to speed divided by frequency or speed times the period. For 10 points, name this distance between identical points on a wave.

ANSWER: **wavelength**

066-11-44-12122

7. At the bottom of this painting, a flower can be seen growing from a broken sword. A panicking dove can be seen on this painting's back wall, just to the left of a window through which an arm holding a lamp and a woman's head enter. On the left side of this painting, a woman grieves for a dead child below a smoky-tailed bull, while its center is home to a screaming horse. For 10 points, identify this grayscale mural by Pablo Picasso, painted in response to the bombing of the namesake Spanish town.

ANSWER: **Guernica**

066-11-44-12123

8. In one opera, this character is accused of infidelity in the aria "Che fiero momento"; that work featuring this character includes the "Dance of the Blessed Spirits." In a work by the composer of *The Tales of Hoffmann*, a character named Public Opinion forces this man to go to the title location, where everyone dances the "Galop Infernal." Those operas by Gluck and Offenbach feature, for 10 points, which mythological musician who tries to rescue his wife Eurydice from the underworld?

ANSWER: **Orpheus** [or **Orfeo**]

142-11-44-12124

9. This city was planned by Auguste Chouteau. In this city, members of the paramilitary Wide Awake organization clashed with advocates of succession in the Camp Jackson Affair. A city directly to the east of this city was the site of a 1917 race riot that killed up to two hundred people. Dredd Scott originally filed his case for freedom in this city. Geronimo appeared at the 1904 World's Fair in this city, and this city hosted the 1904 Olympics. For 10 points, name this city in Missouri that was the point of departure for the Lewis and Clark expedition.

ANSWER: **St. Louis**

030-11-44-12125

10. It is believed that this rebellion caused the hastening of the transition to racial slavery, as a means to control the poor. This rebellion's leader convinced the Occaneechees to attack and capture some Susquehannocks, after which members of both tribes were killed. This rebellion was caused by Governor William Berkeley's refusal to attack drive out Indians on the frontier. During this rebellion, its leader had Jamestown burned down. For 10 points, name this rebellion in colonial Virginia.

ANSWER: **Bacon's** Rebellion

066-11-44-12126

11. [10] What band that retired in 2011, previously released songs in the 80s and 90s like "(Don't Go Back to) Rockville," "Man on the Moon," and "Losing My Religion?"

ANSWER: **R.E.M.**

088-11-44-12127

12. One man of this surname argued for Murray against the University of Maryland, who had denied him admission. A man of this surname was the winning lawyer in *Brown v. Board of Education*. A man of this surname wrote the opinion for *McCulloch v. Maryland*. The first black Supreme Court justice had this surname, which was also held by a man who judged a case in which papers for midnight-posts by John Adams were not delivered. For 10 points, give this surname of Thurgood and John, the Chief Justice who presided over *Marbury v. Madison*.

ANSWER: **Marshall**

124-11-44-12128

13. One character in this story had helped replace chips of wood with pieces of paper. At the beginning, Bobby and Harry Jones, along with Dickie Delacroix, are seen gathering important objects. Other characters include Old Man Warner and the coal manager Mr. Summers. At the end, Tessie Hutchinson protests that “it wasn’t fair” after her name was chosen for a morbid fate. For 10 points, name this Shirley Jackson short story about the annual stoning in a small town.

ANSWER: “**The Lottery**”

064-11-44-12129

14. Two months before this battle, Fort Henry and Fort Donelson were taken by the victorious side who was driven back to Owl Creek before establishing a battle line at a sunken road in front of Sarah Bell's peach orchard called the Hornet's Nest. On the first afternoon of this battle, Albert Sidney Johnston was mortally wounded. For 10 points, name this 1862 Civil War battle in which the Union defeated the Confederacy in southwestern Tennessee.

ANSWER: Battle of **Shiloh** [or Battle of **Pittsburgh Landing**]

130-11-44-12130

15. The protagonist of this novel tells her story while sitting on the porch with her friend Pheoby. Characters in this novel include Logan Killicks, who marries the sixteen-year-old protagonist because he is interested in having her help on his farm. The narrator of this work relates it largely in dialect, telling of her marriage to the Eatonville mayor Jody Starks and the gambler Tea Cake. For 10 points, name this novel about Janie Crawford’s life in Florida, a work of Zora Neale Hurston.

ANSWER: **Their Eyes Were Watching God**

015-11-44-12131



1. As a result of his most well-known invention being rampantly pirated, this man claimed "An invention can be so valuable as to be worthless to the inventor" and never patented his later inventions, which include a milling machine. His most well-known invention was improved upon by Katherine Greene and accelerated the growth of slavery in the south. This man popularized and advocated the use of interchangeable parts. For 10 points, name this inventor of the cotton gin.

ANSWER: Eli Whitney

066-11-44-12132

2. This artist depicted a monkey clutching the leg of the title *Dying Slave* in a statue intended for his tomb of Pope Julius II. One sculpture by this man depicts Mary holding a crucified Jesus in her lap. This artist's most famous work contains nine scenes from the Book of Genesis, the most famous of which sees God imbuing Adam with life by almost touching his finger. For 10 points, name this sculptor of the *Pieta* who also painted the ceiling of the Sistine Chapel.

ANSWER: Michelangelo di Lodovico Buonarrotri Simoni [or Michelangelo Buonarroti]

066-11-44-12133

3. This novel is based off of the life of Margaret Garner, whom the author also wrote a drama about. In this novel's first chapter, it is revealed that Howard and Buglar ran away from home, and Paul D arrives eight years after the death of Baby Suggs. The plot in this novel revolves around a character who comes to live at 124 Bluestone Road, the residence of Denver and Sethe. For 10 points, name this novel about former slaves by Toni Morrison.

ANSWER: Beloved

140-11-44-12134

4. This substance usually is not formed from andesite or dacite because they have a high gas content. When released from tuyas, this substance can cause jokulhlaups (YUH-kul-huh-soyps) or glacier bursts. The pillow type of this substance is usually produced underwater. Its namesake tubes can be formed under its pahoehoe (PA-ho-ay-ho-ay) type, which can transform to the a'a (ah-ah) form due to flow turbulence. For 10 points, give this name for molten rock expelled from a volcano.

ANSWER: lava

066-11-44-12135

5. This was the first World Series in which a regular season full-time DH won the MVP award. In this series, Chase Utley set the record for most home runs in a single World Series at five. In the opening game of this series, Cliff Lee became the first visiting pitcher to throw a postseason shutout at the American League teams' park. The MVP of this series was Hideki Matsui. For 10 points, name this World Series in which the New York Yankees defeated the Philadelphia Phillies.

ANSWER: 2009 World Series

105-11-44-12136