

1. The Giant's Causeway is made from this type of rock as are Lunar mare. The pillow form of this rock is created when it is quickly cooled by water. It is chemically similar to gabbro. This rock has relatively less silica, but plenty of calcium and magnesium making it mafic. This extrusive rock makes up much of the oceanic crust. For 10 points, name this igneous rock that is often contrasted with granite.

ANSWER: **basalt**

001-10-21-04101

2. This ruler's campaign against the Saxons included a series of wars against King Widukind and a possible massacre of a group of Pagan reverts, the Massacre of Verden. His empire sustained a loss at the Battle of Trsat, including the death of his general Eric of Friuli. He was crowned emperor by Pope Leo III in St. Peter's Basilica, though he made his capital at Aachen. Succeeded by his son Louis the Pious, his lands were further divided by his grandchildren via the Treaty of Verdun. For 10 points, name this early Holy Roman Emperor.

ANSWER: **Charlemagne** [or **Charles I**; or **Charles the Great**; or **Charles le Grand**; or **Karl der Grosse**; or **Carolus Magnus**; prompt on **Charles**; prompt on **Karl**; prompt on **Carolus**]

040-10-21-04102

3. This artist included a vase with his first name written on it in one of his many depictions of sunflowers. He painted a red blanket on top of yellow sheets in a depiction of his bedroom at Arles (ar-LAY). This man wrote many letters to his brother Theo, and painted a pool table at the center of his *The Night Café*. This creator of the *Portrait of Dr. Gachet* used swirls of paint to depict the view from his Saint-Rémy asylum. For 10 points, name this Dutch artist of *Starry Night*, a painter famed for cutting off his ear.

ANSWER: Vincent **van Gogh**

015-10-21-04103

4. This molecule is a coenzyme in the conversion of tryptophan to serotonin. It is a cofactor in the conversion of dopamine to norepinephrine. Lysine and proline are hydroxylated in order to produce collagen by this molecule, which was discovered by King and Szent-Györgi (sent-JUR-jee). Linus Pauling's advocacy of megadoses of it has perhaps led to the widespread belief that it wards off the common cold. James Lind showed that its deficiency causes scurvy. For 10 points, name this vitamin found in citrus fruits.

ANSWER: Vitamin **C** [or L-**ascorbic acid**; or L-**ascorbate**]

079-10-21-04104

5. The basis for the modern form of this language was the novel *the Betrothed*. The prepositions tra and fra are used interchangeably in it. The two of the most important verbs in this language are avere and essere. The masculine plural article in this language is spelled g l i. The first person singular pronoun is io (ee oh). For 10 points, name this language in which one can say goodbye or hi with the word ciao (chow).

ANSWER: **Italian** [or **Italiano**]

001-10-21-04105

6. The Redlich-Kwong equation is derived from this statement, which be modified using the acentric and compressibility factors. One modification of this statement uses  $a$  and  $b$  terms to represent intermolecular forces and volume. That modification of this law is called Van der Waal's equation. This equation of state combines Boyle's and Charles's Laws. For 10 points, name this law usually stated  $pV$  equals  $nRT$  that governs a namesake state of matter.

ANSWER: **ideal gas** law

079-10-21-04106

7. This man's fortieth symphony is sometimes known as the "Great G minor" symphony. He included a five-voice fugato at the end of the fourth movement of his Symphony number 41, or Jupiter symphony. This man's most commonly played piece is probably the serenade usually called "Eine kleine Nachtmusik." He died at the age of thirty five, leaving his *Requiem* uncompleted. For 10 points, name this Austrian composer known for his apocryphal rivalry with Salieri.

ANSWER: Wolfgang Amadeus **Mozart**

015-10-21-04107

8. Concerns about getting paid for fighting in this war led to the formation of the Newburgh Conspiracy. After the Battle of Waxhaws in this war, surrendering troops were massacred by Banastre ("banister") Tarleton. Foreign aid in this war came from Hessian mercenaries and the Comte de Rochambeau (raw-shahn-BOH). It ended with Cornwallis's surrender at Yorktown. For 10 points, name this 1775-1783 war in which thirteen colonies broke away from Great Britain.

ANSWER: **American Revolutionary War** [or American **Revolutionary War**; or American **War of Independence**]

079-10-21-04108

9. This ruler's reputation was damaged by the stories spread by his secretary, Antonio Pérez. El Escorial, where he is buried, was built during his reign, which was marked by a flourishing of culture. This son of Charles V married Mary I of England. Though his country defeated the Ottomans at Lepanto, it lost to the English when its Armada was defeated. For 10 points, name this Spanish king who is the namesake of a country whose capital is Manila.

ANSWER: **Philip II** of Spain [or **Philip I of Portugal**; or **Philip the Prudent**; prompt on **Philip**]

024-10-21-04109

10. This man's sins included fathering a son, Adeodatus, on a concubine. This figure converted from Manichaeism to Christianity at the hands of St. Ambrose of Milan. A moralizing influence in this man's life was his mother, Monica. In one work, this man used the Sack of Rome to demonstrate man's damnation by Original Sin. For 10 points, name this saint from Hippo who wrote the *Confessions* and the *City of God*.

ANSWER: St. **Augustine** of Hippo

080-10-21-04110

11. One man with this surname was criticized for a campaign newsletter that referred to "hate Whitey day." Another man with this surname, who ran for office this year, suggested the unconstitutionality of the Civil Rights Act of 1964. That first man with this name failed to win the Republican presidential nomination in 2008, while the second man recently defeated Democrat Jack Conway in a senatorial election. For 10 points, give this surname shared by a Republican representative Ron and his son, a senator-elect named Rand.

ANSWER: **Paul**

081-10-21-04111

12. The title character of this work is forced to live in Earlshall Park after Mrs. Gordon moves. The title character's half-brother, Rob Roy, was killed in a hunting accident. At one point, the title character sees Ginger being carted away after being mistreated by London cabbies, and Duchess is the title character's mother. For 10 points, name this novel that resulted in legislation to improve the lives of horses, the autobiography of the title horse, a work of Anna Sewell.

ANSWER: ***Black Beauty***

030-10-21-04112

13. One character in this novel is a talented pianist named Mademoiselle Reisz, a solitary woman who is contrasted with the character of Adele. Alcée Arobin courts this novel's protagonist after her other love interest moves to Mexico. That love interest, Robert Lebrun, is contrasted with the stern Léonce, the husband of this novel's protagonist. Ultimately, this novel's protagonist drowns herself in the Gulf of Mexico. For 10 points, name this novel about Edna Pontellier, written by Kate Chopin.

ANSWER: *The **Awakening***

024-10-21-04113

14. This man invented the first artificial heart for the French surgeon, Alexis Carrel. This man received \$25,000 from Raymond Orteig for performing his most famous action. Possibly due to his Nazi sympathies, this man became the foremost spokesman for the America First Committee. Bruno Hauptmann was executed for the heavily-publicized murder-kidnapping of this man's child. For 10 points, name this pilot of the *Spirit of St. Louis* who was the first man to fly nonstop across the Atlantic Ocean.

ANSWER: Charles Augustus **Lindbergh**

080-10-21-04114

15. In this novel, Quincy Morris and Dr. Seward are among Lucy Westenra's suitors. Lucy is ultimately killed by her fiance, Lord Godalming. The title character of this work cannot cross a threshold without being invited and must sleep on soil from his own land. That title character is ultimately killed by a group of hunters led by Jonathan Harker and Abraham Van Helsing. For 10 points, name Bram Stoker novel about a vampire.

ANSWER: ***Dracula***

030-10-21-04115

1A. Name the straits that separate Lake Huron from Lake Michigan.

ANSWER: Straits of **Mackinac**

1B. What desert is bounded by the Sinai Peninsula to the west and the Jordan Rift Valley to the east and is located in Israel?

ANSWER: **Negev**

2A. What ABC sitcom features the Dunphy and Pritchett families?

ANSWER: **Modern Family**

2B. What school's undefeated 2010 football season ended when its kicker Kyle Brotzman missed two short field goals against Nevada?

ANSWER: **Boise State** Broncos [or Boise State **Broncos**]

3A. This is a 10-second calculation question. Solve for x in  $9x + 3 = 10$ .

ANSWER:  $x = \frac{7}{9}$  [or **0.77** repeating]

3B. This is a 10-second calculation question. Solve for the positive solution of y in  $y^2 - 4 = 77$ .

ANSWER:  $y = \mathbf{9}$

4A. Name the Confederate commander who died at the Battle of Chancellorsville and earned his nickname at the First Battle of Bull Run because of his stand against Union troops.

ANSWER: "Stonewall" **Jackson** [or Thomas Jonathan **Jackson**]

4B. What process involves adding one solution to another solution to determine the molarity of an acid or a base?

ANSWER: **titration**

5A. This is a 30-second calculation question. What is the approximate sample standard deviation in the set of numbers 9,8,7,10,15 to one decimal place?

ANSWER: **3.1**

5B. This is a 30-second calculation question. Express  $\sin(a+b+c)$  as sums of products of three trigonometric functions of one variable. The only trigonometric functions you can use are sine and cosine.

ANSWER:  **$\cos(a)\cos(b)\sin(c)+\cos(a)\sin(b)\cos(c)+\sin(a)\cos(b)\cos(c)-\sin(a)\sin(b)\sin(c)$**

6A. What now defunct British band fronted by Jeff Lynne recorded such songs as *Can't Get It Out of My Head*, *Telephone Line*, and *Mr. Blue Sky*?

ANSWER: **Electric Light Orchestra** [or **ELO**]

6B. A bead accelerated by gravity will take the least time to slide from one point to another on a frictionless string on what curve, which is described by a point on the edge of a rolling circle?

ANSWER: **cycloid**

7A. This is a 20-second calculation question. If there are unread ten books on my shelf, but I only have time to read four books this month, how many different combinations of books from the shelf could I choose to read this month?

ANSWER: **210**

7B. This is a 20-second calculation question. If a big cube can fit 20 otters inside, how many otters can the cube fit if the side length of the cube is doubled?

ANSWER: **160** otters

8A. What name is given to series that have a limit and to situations where two distantly related species evolve the same trait?

ANSWER: **convergent**

8B. What founder of United Russia and former KGB agent is the current Prime Minister and former President of Russia?

ANSWER: Vladimir Vladimirovich **Putin**

9A. Name the planet that is orbited by the four Galilean moons and is home to a giant storm known as the Great Red Spot.

ANSWER: **Jupiter**

9B. What Greek sculptor made *Hermes bearing the infant Dionysus* and *Aphrodite of Cnidus*?

ANSWER: **Praxiteles**

10A. What name is given to Taylor series centered around zero? The name comes from a Scottish mathematician.

ANSWER: **Maclaurin** series

10B. What opera by Wolfgang Amadeus Mozart ends with the titular womanizer being dragged down to hell by a statue of the Commendatore (COM-men-dah-TOR-ay)?

ANSWER: **Don Giovanni**

1. One equation for discovering this value multiplies the masses of two objects over the radius squared multiplied by this force's universal constant. When this weakest of the four fundamental forces is equal to the drag force on an object, that object will be at a terminal velocity. An object's weight is equal to mass multiplied by this force. For 10 points, name this force that acts as a downward acceleration on an object on Earth at 9.8 meters per second squared, which was studied by Isaac Newton possibly because of an apple.

ANSWER: **gravity**

023-10-21-04117

2. One work that makes use of this technique employs it to present the election of Godfrey of Bouillon as captain of a group of crusaders, while another depicts Satan and Beelzebub lying on a lake of fire, and sees the decision of the former to rebel against God immediately following the exposition of that work. This technique's frequent use in epic poetry includes its depiction of Telemachus at the beginning of the *Odyssey* as Odysseus is already voyaging home. For 10 points, name this literary technique that literally means "into the middle of things," in which a story begins in the midst of the action.

ANSWER: **in medias res**

081-10-21-04118

3. In full-grown humans, ghrelin is produced in larger quantities in this region than in the pancreas. It's not the brain, but APUD cells in this organ produce large amounts of serotonin, and one end of this organ is bounded by the pyloric sphincter. One disease that can afflict this organ is combated by increased release of prostaglandin, and is called gastritis, and this organ is aided in its primary function by the use of hydrochloric acid. For 10 points, name this organ, the first stop for food after being swallowed.

ANSWER: **stomach**

081-10-21-04119

4. In Maori mythology, Maui owns one of these objects that becomes the South Island of New Zealand. In Norse mythology, Frey owns one named Skidbladnir that can fit in a pocket but hold all the gods. Another one of these objects in Norse myth is made from fingernails and called Naglfar. Another one of these objects fits through the Symplegades rocks and carries Atalanta, Heracles, and Jason on the quest for the Golden Fleece. For 10 points, the Argo is an example of what floating object?

ANSWER: **boats** [or **ships**]

015-10-21-04120

5. Some people have used the Dieppe maps to argue that this country was originally discovered by the Portuguese. The Eureka Flag was the symbol of a rebellion which took place in 1854 during a gold rush in this country. Prime Ministers of this country include Robert Menzies, John Howard, and the current leader, Julia Gillard. An island belonging to this country was colonized in 1803 and named Van Diemen's Land. For 10 points, name this nation home to Botany Bay, which was used as a penal colony by the British.

ANSWER: Commonwealth of **Australia**

024-10-21-04121

6. At his death, this author left an unfinished novel about the confidence man Felix Krull. He wrote a tetralogy about the Biblical Joseph during this author's exile from his native country, while earlier he wrote about his hometown Lübeck for his novel centering on the decline of the titular mercantile family. This author of *Buddenbrooks* also wrote novels about Hans Castorp's stay in a Swiss sanatorium and Gustav von Aschenbach's obsession with Tadzio in the titular Italian city. For 10 points, name this German author of *The Magic Mountain* and *Death in Venice*.

ANSWER: Thomas **Mann**

083-10-21-04122

7. This author wrote about a lime-burner who seeks the "Unpardonable Sin" in his short story, "Ethan Brand." In another of his stories, Reverend Hooper refuses to remove the title garment for the rest of his life. This author of "The Minister's Black Veil" wrote about a Puritan who sees his wife Faith at a witches' Sabbath in "Young Goodman Brown." In one of his novels, Dimmesdale has an affair with Hester Prynne, who wears a red "A." For 10 points, name this author of *The Scarlet Letter*.

ANSWER: Nathaniel **Hawthorne**

080-10-21-04123

8. One of the early developers of this technique was Elmo Roper. Groups that specialize in this technique today include Angus Reid Strategies and Zogby. Robert's Rules of Order disallows the "straw" variety of this technique. Inaccurate predictions were developed in 1936 and 1948 by a famous practitioner of this technique, George Gallup. An "exit" type of this technique is done with people who have just voted. For 10 points, name this technique in which citizens are asked for their opinions regarding political issues and candidates.

ANSWER: **Polling** [accept word forms, accept **Surveying**]

052-10-21-04124

9. Oliver Cowdery was a leader of this movement, whose Nauvoo legion perpetrated the Mountain Meadows Massacre. Martin Van Buren rejected the plea of their leader to overturn the Extermination Order that had been issued against them in Missouri. Their 1850s "War" with the U.S. is sometimes called Buchanan's Blunder and came after they were driven from Illinois. 1844 saw the death of their founder, Joseph Smith. For 10 points, name this religious group brought by Brigham Young to Salt Lake City, Utah.

ANSWER: **Mormons** [or **Mormonism**; or Church of Jesus Christ of **Latter-Day Saints**; or **LDS**]

079-10-21-04125

10. In one of this author's short stories, Mr. and Mrs. Richards claim to have told a gambler "You are far from being a bad man--go, and reform," in order to gain a \$40,000 sack of gold. This author of "The Man That Corrupted Hadleyburg" also wrote a novel about a boy who encounters the Duke and the Dauphin while traveling down the Mississippi with the slave Jim. In another novel, this man created the villainous Injun Joe. For 10 points, name this author who created Huck Finn and Tom Sawyer.

ANSWER: Mark **Twain** [or Samuel Langhorne **Clemens**]

080-10-21-04126

11. Calcium is released after this substance is released following the binding of IP3 to the endoplasmic reticulum. Frederick Sanger used trypsin to determine the structure of this hormone, which binds to its receptor to increase glycogen synthesis. It is produced in the beta cells of the Islets of Langerhans in the pancreas. It is opposed by glucagon, which performs the opposite effect by increasing blood glucose levels. For 10 points, name this hormone lacked by sufferers of diabetes mellitus.

ANSWER: **insulin**

079-10-21-04127

12. The protagonist of this work deals with a cramp in his hand as he attempts to cut up dolphin meat at the end of an eighty-four day unlucky streak. At the end of this work, two people in Pedrico's café observe the title character dreaming of lions on a beach. The title character of this work raves about "the great DiMaggio" to his apprentice Manolin. He tries to fight off sharks as they consume the huge marlin he has caught off the coast of Cuba. For 10 points, name this novel about a fisherman named Santiago by Ernest Hemingway.

ANSWER: *The Old Man and the Sea*

079-10-21-04128

13. In the presence of this compound, Nessler's reagent turns yellow. A solution of sodium in this compound is used in the Birch reduction. Its liquid form notably has a specific heat capacity higher than that of water. The reaction used to synthesize it most commonly employs an iron catalyst. It is oxidated in the Ostwald process for producing nitric acid, and this compound itself is produced by the Haber-Bosch process. For 10 points, name this trigonal pyramidal compound with formula  $\text{NH}_3$ .

ANSWER: ammonia

024-10-21-04129

14. A common component found in this part of a computer is a TLB. This component of a computer using pipelining to achieve greater throughput. Important components include the FPU, the ALU, and registers. ARM and x86 are two popular instruction set architectures employed in them, the later of which is used by Intel. Multiple cores are used in modern examples, so multiple programs can be running at once. For 10 points, name this component of a computer that does most of the general purpose computations.

ANSWER: CPUs [or central processing units]

001-10-21-04130

15. One character of this novel converts to Freemasonry and frees his serfs after meeting Bazdeev in a train station. The protagonist of this novel is tricked into marrying the shallow socialite, Helene Kuragina. After the death of Prince Andrey Bolkonsky, the protagonist of this work, a count's illegitimate son, marries his love Natasha Rostova. In this novel, Pierre Bezukov believes he is destined to kill Napoleon after seeing the Battle of Borodino. For 10 points, name this long novel by Leo Tolstoy.

ANSWER: *War and Peace* [or *Voyna i mir*]

080-10-21-04131

1. This author wrote a novel based on the life of Vita Sackville-West entitled *Orlando*. A play by Edward Albee featuring the bickering couple George and Martha is titled after this author. This author also wrote about the Ramsay family in *To the Lighthouse* and wrote a feminist essay called *A Room of One's Own*. She also wrote a novel about a woman who regrets not marrying Peter Walsh, a protagonist whose first name is Clarissa. For 10 points, name this English author of *Mrs. Dalloway*.

ANSWER: Virginia **Woolf**

081-10-21-04132

2. For one work, this anthropologist studied the Arapesh culture, where men and women had equal roles, and the Tchambuli culture, where traditional gender roles were reversed. This author of *Sex and Temperament in Three Societies* wrote another work claiming that adolescence on the island of Ta'u was less stressful than in America, since sexuality was not a taboo subject there. For 10 points, name this woman who wrote *Coming of Age in Samoa*.

ANSWER: Margaret **Mead**

080-10-21-04133

3. One of these events was ended by the 1328 Battle of Cassel. One of these events in Germany in the 1520s was the subject of a work by Friedrich Engels. One of these events in Italy was led by the ciompi (TSHOM-pee). Another of these events in France is known as the Jacquerie. One of these events was led by John Ball and Jack Straw, as well as its namesake, and was a response to the poll tax. For 10 points, name this uprising of the lower classes, one of which was led by Wat Tyler.

ANSWER: **peasant revolts** [accept equivalents, such as **popular revolts**; prompt on **revolts** or equivalents]

024-10-21-04134

4. One indicator of this condition after death is the migration of neutrophil leucocytes to a certain area of the body, while one step in the exacerbation of this condition is the release of a large amount of cytokines. That step in this disease results in greater permeation of the blood-brain barrier, which in turn results in greater pressure inside the skull. For 10 points, identify this disease, an inflammation of namesake membranes surrounding the spinal cord and brain.

ANSWER: **meningitis**

081-10-21-04135

5. This thinker considered decorum when asserting "the banquet of Thyestes cannot be dirty." He also coined the term "purple prose" and stated, "as is painting, so is poetry." One work by this thinker titles a twentieth-century poem that asserts "a poem should not mean, but be" by Archibald MacLeish. He also defined such literary terms as *in medias res* and *deus ex machina*. For 10 points, name this Roman who authored *Ars Poetica* and a number of odes and coined the phrase *carpe diem*.

ANSWER: **Horace** [or Quintus **Horatius** Flaccus]

079-10-21-04136

What villanelle by Elizabeth Bishop claims that "the art of losing isn't hard to master"?

ANSWER: "**One Art**"

079-10-21-04137

This is a 30-second calculation question. What are the solutions for  $y$  in  $2x^2y^2 - 10x^2 - 6y^2 + 30 = 0$ ?

ANSWER:  $y = \underline{\text{square root of 5}}$  and  $y = \underline{-\text{square root of 5}}$

079-10-21-04137