

1. Taking the set of each principal axis divided by the square root of its value for this quantity yields an ellipsoid. Steiner's theorem, also known as the parallel axis theorem, finds this quantity if it is known about an axis running through the center of mass. This quantity is equal to the sum of the product of each point mass with the square of its distance from the axis of rotation. It multiplies angular acceleration to give torque. For 10 points, name this rotational analogue of mass.

ANSWER: **moment of inertia** [or **I**; prompt on **inertia**]

001-10-18-04101

2. One character in this novel beats Herb to death with a shovel. That character, Connie Rivers, later marries a character who delivers a stillborn baby, Rose of Sharon. Grampa and Granma both die during a journey which takes place in this novel, in which a family whose members include Tom, Ma, and Pa tries to escape the Dust Bowl. For 10 points, name this Steinbeck novel about the Joads' journey from Oklahoma to California.

ANSWER: *The **Grapes of Wrath***

045-10-18-04102

3. The astronomer James Keeler names a needle of this mountain, which was almost named Fisherman's Peak after the profession of its first climbers. The town of Lone Pine can be found to its east in the Owens Valley. This southern terminus of the John Muir Trail is located in both the Inyo National Forest and the Sequoia National Park. The Badwater Basin, the lowest point in North America, is located a mere eighty-five miles from, for 10 points, what mountain in California, the highest in the contiguous United States?

ANSWER: Mount **Whitney**

083-10-18-04103

4. The ruling family during this period was symbolized by three hollyhock leaves. The golden age of this period was the Genroku era. This period was established after its namesake founder won the Battle of Sekigahara. During this period, which established its capital at Edo, only samurai were allowed to carry swords. The country under this government was forced open by Matthew Perry and the Treaty of Kanagawa. This period gave way to the Meiji Restoration in 1868. For 10 points, name this last shogunate of Japan.

ANSWER: **Tokugawa** Shogunate [or **Tokugawa** Bakufu; or **Edo** Period before it is read]

080-10-18-04104

5. In a laboratory environment, calcium chloride and sodium sulfate are commonly used "agents" for removing this substance; those agents are known as dessicants. This substance's solid-liquid phase boundary has a negative slope. Its triple point is used to define the Kelvin. One molecule of this is formed in a condensation reaction. Many of this compound's unusual properties, such as its solid being less dense than its liquid form, are the result of hydrogen bonds. For 10 points, name this chemical with formula H<sub>2</sub>O.

ANSWER: **water** [accept **H<sub>2</sub>O** before mentioned]

001-10-18-04105

6. The Keo Nua Pass in this country is one of the few passes through the Annamese Cordillera (CORE-dee-YARE-uh). This nation's capital includes the Temple of the Trung Sisters and is located on the Red River. The imperial citadel of Dai Noi is found in this country's onetime capital Hue (hway). For 10 points, name this Southeast Asian nation that was reunified in 1975 after a bloody war between the communist north and U.S.-aligned south.

ANSWER: **Vietnam**

030-10-18-04106

7. Before the discovery of this molecule, its importance was realized by men like Richard Hawkins and the writer of *The Surgeon's Mate*, John Woodall. James Lind was the first to advocate for the consumption of a source of this molecule by members of a certain profession. Albert Szent-Gyorgyi ("SAINT"- "GEORGE") originally misidentified this nutrient as hexuronic acid before truly discovering it. For 10 points, name this vitamin that some people advocate taking in megadoses, which was eventually used by the British navy to eliminate sailors' problems with scurvy.

ANSWER: **Vitamin C** [or L-**ascorbic acid**; or **C<sub>6</sub>H<sub>8</sub>O<sub>6</sub>**]

023-10-18-04107

8. This man's return home was expedited when his lover murdered her brother Apsyrtus. Two of this hero's men, Zetes and Calais, drove the harpies away from Phineas. Sent from Iolchos by his conniving uncle Pelias, this man arrived at Colchis, where Medea helped him obtain the golden fleece. This hero sailed in a ship with a prophetic prow along with Greece's greatest heroes. For 10 points, name this leader of the Argonauts.

ANSWER: **Jason**

080-10-18-04108

9. Sam Houston resigned as Governor of Texas to protest this action. The Federalist Party was ruined because the Hartford Convention became synonymous with performing this action, even though it decided against it. The admittance of California caused some states to threaten to do this in 1850, although no state actually performed this action until the election of Abraham Lincoln incited South Carolina to perform it. For 10 points, name this action taken by Southern states which directly caused the Civil War.

ANSWER: **seceding** from the **Union** [or **seceding** from the **United States**; or clear-knowledge equivalents]

004-10-18-04109

10. Entering this region is the ultimate goal of the Chikyu Hakken (CHEE-kew HAWK-ken) project. The lowermost section of this region is known as the D double-prime layer. Its upper boundary is a discontinuity commonly known as the Moho. Its upper section contains the asthenosphere and shares the lithosphere with the region above it. For 10 points, name this layer of the Earth between the core and the crust.

ANSWER: **mantle**

024-10-18-04110

11. As part of a punishment, this character forces his children to read to the dying Mrs. Dubose for a month. One argument made by this man focuses on how a left-handed person would be more likely to produce a bruise on the right side of the face than a man with a shriveled left arm. At one point, this man's sister, Aunt Alexandra, stays at his house. He lives with his maid Calpurnia, and defends Tom Robinson on charges of rape brought up by Mayella Ewell. For 10 points, name this father of Jem and Scout, a central character in *To Kill a Mockingbird*.

ANSWER: **Atticus** Finch [prompt on "Finch"]

064-10-18-04111

12. This battle started after troops under Henry Heth (HEETH) spotted John Buford's cavalry. Key locations in this battle included the Peach Orchard and Devil's Den. One general in this battle, Dan Sickles, disobeyed orders by moving his corps from its location along Cemetery Ridge. That ridge was the object of Pickett's Charge at the end of this battle. George Meade's victory in this battle ended a Confederate invasion of the North. For 10 points, name this battle whose site was later the location of an Address by Abraham Lincoln.

ANSWER: Battle of **Gettysburg**

024-10-18-04112

13. One play by this author opens as a character sits upon a stone and is ordered by villagers to leave, as he trespasses on lands sacred to the Furies. In another play, the chorus proclaims that punishment brings wisdom after the suicides of Eurydice (you-RID-uh-see) and Haemon (HIGH-mahn). That play is about Ismene's (is-MEH-nay) sister, who buries one of her brothers. This author wrote about the self-induced blindness of the title character in another play, who defeats the Sphinx, kills his father, and marries his mother. For 10 points, identify this playwright of *Antigone* and *Oedipus Rex*.

ANSWER: **Sophocles**

020-10-18-04113

14. The Bloody Assizes were held during the rule of this king following a plot to overthrow him known as the Monmouth Rebellion. This monarch issued the Declaration of Indulgence, which granted religious toleration to Christians. That document led his critics to invite a foreign army led by William of Orange of the Netherlands. Forces loyal to this man were defeated at the Battle of the Boyne, two years after he was overthrown by William III and Mary II during the Glorious Revolution. For 10 points, name this English king who succeeded Charles II.

ANSWER: **James II** of England [or **James VII of Scotland**; prompt on **James**]

064-10-18-04114

15. A standardized form of these vehicles were developed in the 1930s under the direction of the Presidents' Conference Committee. Under the guise of National City Lines, a consortium including General Motors and Firestone converted many of these systems to motor buses in the 1950s. Modern versions of these systems are known as light rail. For 10 points, name this form of public transit whose most famous incarnations are the cable cars of San Francisco and, as made famous by a Tennessee Williams play, New Orleans's "Desire" line.

ANSWER: **streetcars** [or **trams** or **trolleys** or **trolleycars** or **light rails** before those terms are read]

082-10-18-04115

1A. "Lateral," "ground," and "terminal" are types of what piles of accumulated glacial debris?

ANSWER: **moraines**

1B. The corpus callosum links the hemispheres of what body part that also consists of a medulla oblongata for controlling breathing, a cortex for memory, and a cerebellum for motor skills?

ANSWER: **brain**

2A. What President signed the Walker Tariff and initiated the Mexican-American War?

ANSWER: James Knox **Polk**

2B. What Scottish philosopher wrote an influential six volume *History of England and An Enquiry concerning Human Understanding*?

ANSWER: David **Hume**

3A. This is a 10-second calculation question. What is the area of a circle whose diameter is 8 over pi.

ANSWER: **16**

3B. This is a 10-second calculation question. What is the sine of 90 degrees?

ANSWER: **1**

4A. What 2009 movie starred Sam Worthington as Jake Sully, a paraplegic who helps the Na'vi fight against humans seeking to plunder the planet of Pandora?

ANSWER: **Avatar**

4B. Mason and Hudson are the main characters of what November 2010 installment in the Call of Duty series?

ANSWER: *Call of Duty: **Black Ops***

5A. This is a 20-second calculation question. What is the mean of the numbers 1 through 13?

ANSWER:  $x =$ **7**

5B. This is a 20-second calculation question. How many ways are there to choose 2 pelicans from a group of five pelicans?

ANSWER: **10**

6A. English took the word "boondocks" from Tagalog (tah-GAW-log), which is traditionally the first language for the residents of what populous Pacific Island nation, that also commonly speaks English and Spanish?

ANSWER: Republic of the **Philippines** [or Republika ng **Pilipinas**]

6B. What painting by Théodore Géricault (GAIR-ee-koh) portrays the desperate survivors of an 1816 shipwreck?

ANSWER: *The **Raft of the Medusa***

7A. This is a 30-second calculation question. What is the solution for the system of equations  $2y + x = 19$ , two thirds y plus five halves z equals 36,  $x + z = 13$ ?

ANSWER: **x = 1, y = 9, z = 12**

7B. This is a 30-second calculation question. What if x is congruent to 3 mod 7, x is congruent to 2 mod 5, and x is greater than 0 and less than 35?

ANSWER:  $x =$ **17**

8A. What German Baroque composer repeated the notes D, A, B, F-sharp, G, D, G, A in his iconic *Canon in D*?

ANSWER: Johann **Pachelbel**

8B. What world leader plans to implement his "Big Society" as the Conservative prime minister of Great Britain?

ANSWER: David William Donald **Cameron**

9A. Name the oil rig leased by BP where an explosion in April 2010 led to a five-month effort to kill the ensuing oil spill, that was finally successful on September 19th, 2010.

ANSWER: **Deepwater Horizon**

9B. What type of matter makes up neon signs and stars, as well as over ninety-nine percent of the universe?

ANSWER: **plasmas**

10A. Io and Callisto are moons of what planet, which also has a Great Red Spot?

ANSWER: **Jupiter**

10B. Name the Absurdist French-Romanian playwright who created characters such as Berenger in *Rhinoceros*, as well as the Smiths and Martins in *The Bald Soprano*.

ANSWER: Eugene **Ionesco** [or Eugen **Ionescu**]

1. One of this artist's paintings depicts Brutus sitting in the shadows as lictors bring his dead sons out to him, while Hersilia, the wife of Romulus, separates two fighting men in his *The Intervention of the Sabine Women*. Another painting by this man shows three brothers holding out their arms as their father holds three swords, while another work shows a victim of Charlotte Corday lying in a bathtub. For 10 points, name this French Neoclassical painter of *The Oath of the Horatii* and *The Death of Marat*.

ANSWER: Jacques-Louis **David**

064-10-18-04117

2. In Greek and Roman literature, this genre was predominantly associated with dactylic hexameter and began "in medias res." European examples of this genre include *Orlando Furioso*, *The Faerie Queene*, and *The Song of Roland*. This type of poem often describes important events in the history of a nation, such as the founding of Rome by Aeneas in the *Aeneid*. For 10 points, name this genre of long, narrative poetry that traditionally describes heroic deeds.

ANSWER: **epics** [or **epic poems**; or **epic poetry**; or clear-knowledge equivalents]

004-10-18-04118

3. Many languages in this group use a tri-consonantal root, in which vowels around and between consonants change to mark word inflection, but consonants within the word remain the same. Languages in this subfamily include Ge'ez, Amharic, and other tongues spoken in Ethiopia, as well as an ancient language likely spoken by Jesus and his contemporaries, Aramaic. For 10 points, identify this group within the Afro-Asiatic family that also includes the contemporary Middle Eastern languages Arabic and Hebrew.

ANSWER: **Semitic** languages [accept **Afro-Asiatic** before "subfamily" is read]

019-10-18-04119

4. This animal, which is not flat like the rest of its class, has a coiled ileum in its small intestine to provide a greater surface area for increased absorption of food called the spiral valve. This animal also has a series of jelly-filled canals that function as electroreceptors in water called the Ampullae of Lorenzini. Lacking a swim bladder and noted for regenerating their teeth, they must always swim to keep afloat. Related to skates and rays, for 10 points, name this animal typified by the species cookiecutter, tiger, and great white, a cartilaginous fish.

ANSWER: **sharks**

079-10-18-04120

5. This city's original NBA franchise moved in 1979 to Salt Lake City, and their current NBA franchise moved in after the 2001-2002 season. This city is home to a stadium which has hosted, starting in 1978, more Super Bowls than any other. That stadium is also known for the Sugar Bowl and for serving as a makeshift shelter for many victims of Hurricane Katrina. For 10 points, name this city which is home to the Hornets, and whose Louisiana Superdome hosts the NFL's Saints.

ANSWER: **New Orleans**

082-10-18-04121

6. One of this man's works concerns a Burger Chef owner who mistakes a science-fiction book for the literal truth, while foma and granfaloons are elements of Bokononism in a work of his where ice-nine destroys the world. Another work by this author of *Breakfast of Champions* centers on an optometrist from Ilium, New York who experiences the firebombing of Dresden in World War II and becomes "unstuck in time." For 10 points, name this author of *Cat's Cradle* who told the story of Billy Pilgrim in *Slaughterhouse-Five*.

ANSWER: Kurt **Vonnegut**

082-10-18-04122

7. Kendall notation allows one to characterize models based on actual instances of this structure. Multilevel feedback scheduling uses these data structures. Double ended ones are possible while heaps and their variants are typically used to implement priority ones. This data structure supports a front operation and this data type is usually contrasted with a stack. For 10 points, name this data structure that is first in first out and are exemplified by lines at grocery stores.

ANSWER: **queue** [prompt on **FIFO**]

001-10-18-04123

8. The best-known critical work concerning this book begins with the allegory of the tower and attacks W. P. Ker's statement that this book's hero has "nothing else to do." That critical work, J. R. R. Tolkien's *The Monsters and the Critics*, contends that Fafnir and this work's third antagonist are the only prominent dragons in Northern European epic poetry. Tolkien also accepts that this epic was written "during the age of Bede," and that it is not an actual depiction of "historic Denmark or Sweden about A.D. 500." For 10 points, name this Old English poem about a hero who defeats the monster Grendel.

ANSWER: **Beowulf**

003-10-18-04124

9. For a uniform ball rolling down an incline with angle theta, a coefficient of proportionality associated with this quantity must be at least two-sevenths tangent theta to prevent slipping. A slipping ball, however, requires a different coefficient associated with the quantity, because the coefficient depends on whether or not the contact points are moving. Both the static and kinetic type of this force are proportional to the normal force. For 10 points, name this force that opposes the direction of an object's motion.

ANSWER: **frictional** force

003-10-18-04125

10. Members of this religion believe in a messiah called the Mahdi. Converting to this religion only requires reciting the shahada. This religion's believers pray five times a day while facing qibla. Its two main branches are Sunni and Shi'a, and its members make annual pilgrimages to Mecca. For 10 points, name this religion that follows the Quran, which was dictated by its founder, Muhammad.

ANSWER: **Islam**

004-10-18-04126

11. The speaker of one of this man's poems says "I am not Prince Hamlet, nor was meant to be" and asks "Do I dare to eat a peach?" The phrase "Hurry up please it's time" is repeated in "A Game of Chess," the second section of one of his poems. That poem, whose other sections include "What the Thunder Said" and "The Burial of the Dead," begins "April is the cruellest month." For 10 points, name this poet of "The Love Song of J. Alfred Prufrock" and *The Waste Land*.

ANSWER: Thomas Stearns **Eliot**

045-10-18-04127

12. In RSA encryption, two of these numbers are multiplied together to create a public key. Proof of the Riemann hypothesis would link the distribution of these numbers to solutions of the Riemann zeta function. The Fundamental Theorem of Arithmetic states that every positive integer greater than one is a unique product of these numbers. For 10 points, name these numbers that are only divisible by themselves and one.  
ANSWER: **prime numbers**

004-10-18-04128

13. This author wrote a novella in which David Kepesh turns into the title body part. He included the short story "The Conversion of the Jews" in his first book, *Goodbye, Columbus*. Nathan Zuckerman narrates his novel *The Human Stain*. He also wrote a novel whose title character delivers a monologue about his sexual exploits to his psychiatrist, Dr. Spielvogel. For 10 points, name this author of *Portnoy's Complaint*.  
ANSWER: Philip Milton **Roth**

024-10-18-04129

14. One natural variety of this compound is found in blueberries, and is called anthocyanin (AN-tho-SYE-uh-nin). Another example of this compound is named for its similarity in color to the mineral malachite (MAL-uh-kite). Another one of these compounds is used as a color marker in gel electrophoresis, while another can turn fuchsia when it is used. Bromophenol (BRO-me-FEE-nol) blue and phenolphthalein (FEE-nol-THAY-leen) are examples of, for 10 points, what type of compound whose color changes are used to determine the pH of a substance?  
ANSWER: pH **indicators**

081-10-18-04130

15. John Kay and James Hargreaves made inventions that allowed for greater growth of this crop, with those inventions being the flying shuttle and spinning jenny. The belief that Europe was dependent on this crop led it to be known as "king." In the late nineteenth century, this crop was ravaged by the boll weevil. This crop became widely grown after a machine was made to separate it from its seeds. That machine was made by Eli Whitney and called its "gin." For 10 points, name this main crop grown by slave states in the American South.  
ANSWER: **cotton**

004-10-18-04131

1. A soliloquy from this play features the main character lamenting “Life’s but a walking shadow, a poor player.” One character in this play was born via C-section and camouflages his soldiers in tree limbs from Birnam Wood, allowing him to exact revenge while fulfilling the prophecy of the three witches. The title character’s wife sleepwalks, uttering “Out, out damned spot!” For 10 points, name this Shakespeare tragedy in which the titular Thane of Cawdor murders King Duncan, often referred to as the “Scottish Play.”

ANSWER: **Macbeth**

082-10-18-04132

2. These cells come in pyramidal and multipolar varieties. Protein synthesis in them takes place in Nissl (NISS-uhl) bodies. One component of them is protected by a myelin (MY-uh-lin) sheath, which may be formed of Schwann (SHVAHN) cells. They come in afferent and efferent types, which are also known as sensory and motor, respectively. They consist of a soma, dendrites, and an axon, and transmit impulses across synapses. For 10 points, name these cells of the nervous system.

ANSWER: **neurons** [accept **nerve cells** before "nervous"]

024-10-18-04133

3. This leader survived a crushing defeat at Dyrrhachium (deer-RAWK-ee-um) to win a civil war. He built two concentric walls to besiege the city of Alesia, and wrote that "all of Gaul is divided into three parts" after defeating Vercengetorix (vur-sin-GET-uh-riks) there. This husband of Calpurnia won the battle of Pharsalus and made up the First Triumvirate with Crassus and Pompey. Like his lieutenant Mark Antony, he fell in love with Cleopatra. For 10 points, name this Roman dictator who was killed by Brutus and Cassius on the Ides of March.

ANSWER: Gaius Julius **Caesar**

015-10-18-04134

4. This politician was nearly assassinated by the student Ferdinand Cohen-Blind. This politician initiated the Kulturkampf against his country's Catholic Church. This man formed the League of the Three Emperors and the Triple Alliance in order to ensure the balance of power in late nineteenth century Europe. He also provoked the Franco-Prussian War and worked for Wilhelm I in engineering the unification of Germany. For 10 points, name this German statesman nicknamed the "Iron Chancellor."

ANSWER: Otto Eduard Leopold von **Bismarck**

004-10-18-04135

5. This god gave the horse Gullfaxi to his son Magni after killing the giant Hrungnir with the help of his servant Thialfi. This god disguised himself as Freya to reclaim his weapon from Thrym, and will kill the Midgard Serpent at Ragnarok, only to die from its poison. He kills his enemies with lightning bolts from his hammer, Mjollnir. For 10 points, name this Norse god of thunder.

ANSWER: **Thor**

004-10-18-04136