



1. This poem encompasses the Finnesburg Fragment and the "Lay of the Last Survivor." It begins with a biography of Scyld Scefing, and features a song about the Frisian king Finn. Its title character is criticized for losing to Breca in a swimming contest, but is later given the sword Hrunting by Unferth. That character dies after killing a dragon with Wiglaf's help, years after aiding Hrothgar. For 10 points, name this Old English poem whose title hero kills Grendel.

ANSWER: Beowulf

192-12-71-06101

2. Glomeromycota is the only fungal phylum to not undergo this process, which sees the temporary formation of a Holliday junction. Some cells that undergo this process leave behind polar bodies. Certain locations known as chiasmata form after synapsis occurs during this process. Errors at two different points of this process may result in polyploidy and nondisjunction. Crossing over results in genetic recombination during this process, whose second half is virtually identical to mitosis. For 10 points, name this form of cell division that results in four haploid cells.

ANSWER: meiosis

020-12-71-06102

3. This man received a scar on his right thigh while boar hunting on Mount Parnassus as a youngster. While dressed as a beggar, he is mocked by Antinous and by his traitorous goatherd Melanthius. He proves his identity by stringing a bow and shooting an arrow through twelve axe shafts, after which he joins his son Telemachus to slaughter the would-be suitors of his wife. For 10 points, name this husband of Penelope, who finally makes it home after the Trojan War after a journey documented in a namesake Greek epic.

ANSWER: Odysseus [or Ulysses]

052-12-71-06103

4. This man studied his cousin's seances for his medical school thesis, *The Psychology of So-Called Occult Phenomena*. This man claimed that cultural differences cannot completely explain the appearance of mythological themes in dreams and visions and formulated the idea of archetypes. This man also developed a concept to explain meaningful coincidences called synchronicity. For 10 points, name this Austrian psychologist who developed the concept of the collective unconsciousness and popularized the use of introversion and extroversion.

ANSWER: Carl Jung

030-12-71-06104

5. One of this poet's works is about a girl from Acadie who loves Gabriel Lajeunesse, and he wrote of a man with "large and sinewy hands" in his "The Village Blacksmith." This man wrote an epic poem about the son of Nokomis, and another of his poems mentions the "hurrying hoof-beats" of the steed of the title historical figure, who was told to "hang a lantern aloft" in the North Church tower. For 10 points, identify this American poet who wrote *The Song of Hiawatha* and "Paul Revere's Ride."

ANSWER: Henry Wadsworth Longfellow

189-12-71-06105

6. A recent rumor involving this company claimed that a competitor had paid back a one billion dollar fine with nickels. A failed product by this company accidentally revealed a secret military base, although it has trouble finding routes between two places. This company is in an ongoing legal battle with Samsung over its mobile devices, while Google recently dropped a lawsuit against this company and its product Siri. For 10 points, name this tech company that released the iPhone 5 in 2012.

ANSWER: **Apple** Inc.

149-12-71-06106

7. In one scene, this character repeatedly instructs another to “put money in thy purse.” In another speech, this character resolves, “I will wear my heart upon my sleeve for daws to peck at: I am not what I am.” Later, he warns another character about the “green-eyed monster which doth mock the meat it feeds on.” This character’s manipulations result in the smothering of the faithful Desdemona by her Moorish husband. For 10 points, name this Shakespearean villain who corrupts Othello.

ANSWER: **Iago**

014-12-71-06107

8. A popular series of Youtube videos feature grandparents listening to this artist's music. One of his music videos shows a girl killing a man after shouting one of the lyrics from his song "First of the Year (Equinox)." He's featured in memes centering on the phrase "drop the bass." For 10 points, the song "Scary Monsters and Nice Sprites" is by what dubstep DJ?

ANSWER: **Skrillex** [or Sonny Jonn **Moore**]

088-12-71-06108

9. In this work, a character with a mulberry-colored birthmark on his face disappears, and the central characters in this work are frightened by a dead parachutist. An overweight boy whose glasses are used to start fires is killed with a boulder in this novel, whose characters include Sam, Eric, and Piggy. For 10 points, identify this novel about the clashes between Jack Merridew and Ralph while they are stranded on an island, a work by William Golding.

ANSWER: ***Lord of the Flies***

189-12-71-06109

10. One event of this type taking place between 1897 and 1899 led to the growth of Dawson City in Canada. Another event of this type taking place near New Helvetia was set off by James Marshall's discovery at Sutter's Mill; that event of this type resulted in a huge influx of people who came to be known as forty-niners. For 10 points, identify this type of event that caused San Francisco to grow dramatically, an event which involves an influx of people attempting to find a certain precious metal.

ANSWER: **gold rushes** [accept any answer describing migrations to a location to find **gold**; accept **Klondike gold rush** before "New Helvetia" is read]

189-12-71-06110

11. The protagonist of this novel only manages to repeat the phrase "there, there" when another character dies in a plane. One character in this novel purchases all of Egypt's cotton, and this novel set in Pianosa includes such characters as Snowden and Milo Minderbinder. The novel explores the paradoxical nature of the protagonist's desire to be declared insane in order to avoid engaging in more bombing missions. For 10 points, identify this novel about Yossarian, written by Joseph Heller.

ANSWER: ***Catch-22***

189-12-71-06111

12. During this war, William Joyce gained the nickname "Lord Haw Haw" for his radio addresses. Coventry Cathedral was destroyed by a bombing campaign in this war. Many children who grew up during this war were malnourished due to the coupon-filled "ration books" required to buy food. In this war, a planned invasion codenamed Operation Sea Lion was shelved when the RAF's Spitfires fought off the Luftwaffe (LOOFT-vah-fuh) in the Battle of Britain. For 10 points, name this 1939 to 1945 war in which the UK sided with the Allies against the Axis.

ANSWER: **World War II** in Britain [or **Second World War**]

080-12-71-06112

13. This team employed the Hall of Fame infield of "Tinker, Evers, and Chance." In its last World Series appearance, one fan was ejected along with his goat. A State Farm commercial set in this team's ballpark has a cameo by a confused Andre Dawson. In 2003, this team lost the infamous "Steve Bartman" game when a fan potentially interfered with a catch. In the 2012 season, this team featured such players as Alfonso Soriano and Starlin Castro. It has not won a World Series since 1908. For 10 points, name this baseball team which plays at Wrigley Field.

ANSWER: Chicago **Cubs** [prompt on **Chicago**]

052-12-71-06113

14. This city grew out of a settlement on Keppel Harbor. This city is connected via two causeways to the nearby city of Johor. The Sook Ching massacre was carried out here after it was surrendered to the Japanese. Lee Kuan Yew was the first autonomous leader of this city, which was founded by Sir Stamford Raffles. This southernmost of the Four Asian Tigers is built on 63 islands. This city's chewing gum ban is an example of its notoriously strict standards of cleanliness. For 10 points, name this city-state on the southern tip of the Malay Peninsula.

ANSWER: Republic of **Singapore** [or Republik **Singapura**]

020-12-71-06114

15. A point at which this operation returns zero is described by Rolle's theorem, which is generalized by the mean value theorem. The chain rule describes how to perform this operation on composite functions. Performing this operation on the natural logarithm of  $x$  yields one over  $x$ , and performing it on  $x$ -squared yields two  $x$ . For 10 points, name this operation that yields the rate of change of a function, often shown graphically as the tangent of a two-dimensional curve.

ANSWER: **differentiation** [or taking a **derivative**]

014-12-71-06115



1A. The Kroll process isolates what lightweight metal often used in aerospace engineering?

ANSWER: Titanium

1B. Which Italian Renaissance master painted *Primavera* and depicted a goddess of love emerging on a large seashell in *The Birth of Venus*?

ANSWER: Sandro Botticelli

2A. What name is given to a literary comparison using "like" or "as?" Homer utilized a namesake extended form of this device.

ANSWER: simile

2B. A common biological "pump" uses active transport to exchange 3 atoms of sodium for 2 atoms of what element?

ANSWER: potassium [or K]

3A. What Kansas governor carried only Vermont and Maine in the 1936 election against Franklin Roosevelt?

ANSWER: Alfred Mossman Landon

3B. Identify the Italian-American opera composer who depicted a schoolbus of children threatened by aliens in *Help! Help! The Globolinks!* and wrote the first opera to debut on a television broadcast, the Christmas-themed *Amahl and the Night Visitors*.

ANSWER: Gian-Carlo Menotti

4A. What 1887 experiment made use of an interferometer and provided evidence that luminiferous aether did not exist?

ANSWER: Michelson-Morley Experiment

4B. This is a 20-second calculation question. A square has a diagonal that measures 2 times the square root of 3 units. What is the area of the square?

ANSWER: 6 square units

5A. This is a 30-second calculation question. Given that theta is an angle whose tangent is one half, find the tangent of two times theta.

ANSWER: 4/3 [or 1 and 1/3]

5B. What first president of Gran Colombia was known as the Liberator for his fighting against Spanish rule in South America?

ANSWER: Simon Bolivar

6A. What Russian ruler was advised by her lover Grigory Potemkin and put down Pugachev's Rebellion?

ANSWER: Catherine the Great [or Catherine II of Russia; or Yekaterina Alekseyevna; or Yekaterina Velikaya; or Sophie Frederike Auguste; prompt on Catherine]

6B. Alfred Eisenstaedt's photograph *V-J Day in Times Square* depicts a returning sailor spontaneously performing what action?

ANSWER: kissing a nurse

7A. This is a 30-second calculation question. If four hens can lay eight eggs a day, how long will it take one hen to lay twenty eggs?

ANSWER: **10** days

7B. This is a 30-second calculation question. A red die and a blue die, each 10-sided with the numbers 1 through 10 on the faces, are rolled. Find the probability that the number on the red die is higher.

ANSWER: **9/20** [or 0.**45**; or **45 percent**]

8A. Which British philosopher put forth the concept that the mind was a "tabula rasa," or a blank slate, in his *An Essay Concerning Human Understanding*?

ANSWER: John **Locke**

8B. Which neural disease, which is treated partially by administration of L-dopa, results in slowness of movement and is sometimes known as the "shaking palsy"?

ANSWER: **Parkinson**'s disease

9A. Name the Renaissance Italian poet who wrote *Il Canzoniere*, which features many poems about his beloved, Laura.

ANSWER: **Petrarch** [or Francesco **Petrarca**]

9B. What physicist names a law of cooling and three laws of motion?

ANSWER: Sir Isaac **Newton**

10A. Basalt and granite are examples of what class of rocks that forms from magma or lava?

ANSWER: **igneous** rocks

10B. Name this German composer of the *Winterreise* cycle, best known for his *Unfinished Symphony*.

ANSWER: Franz Peter **Schubert**



1. One character in this novel listens to Vinteuil's F-sharp violin and piano sonata, associating a five-note "little phrase" with his love. This novel's narrator eats a tea-soaked madeleine cookie which causes involuntary memories of childhood. The aforementioned American visitor to Madame Verdurin's salon, Charles Swann, falls for the lower-class Odette de Crecy in *Swann's Way*, the first of its seven parts. For 10 points, name this memoir-like French novel by Marcel Proust.

ANSWER: *In Search of Lost Time* [or *Remembrance of Things Past*; or *A la Recherche du Temps Perdu*; prompt on *Swann's Way* until it is read]

104-12-71-06117

2. In mathematics, these structures are undirected graphs in which any two vertices are connected by a single path. In computer science, these structures can be searched breadth-first or depth-first. These structures are traversed or "walked." Removing and adding sections is known, respectively, as pruning and grafting them. For 10 points, identify these data structures that whose nodes are leaves, that are attached to branches that meet at a root.

ANSWER: tree

066-12-71-06118

3. This poet described a time when birds sleep through the night with open eye in the first section of his longest work. This man developed rhyme royal for a tragic poem about two Trojan lovers, *Troilus and Criseyde*. In another work by this man, the Friar and the Summoner are two rivals in a party that travels from the Tabard Inn to the tomb of Thomas Becket while tellings stories such as the one told by the Wife of Bath. For 10 points, name this author of *The Canterbury Tales*.

ANSWER: Geoffrey Chaucer

195-12-71-06119

4. The English word "paradise" comes from this language's word for "enclosure." An epic written in this language tells of the hero Rustam and is the "Book of Kings" by Ferdowsi. An ancient version of this language is called Avestan, and its "middle" version was the language of the Sassanids. The word "chess" comes from its word for king, *shah*. This Indo-European language influenced Urdu and uses the Arabic alphabet. For 10 points, name this language spoken in Iran.

ANSWER: Persian [or Farsi; or Iranian before it is read]

080-12-71-06120

5. Niels Abel showed there was no general way to find these values when the order is five or more. For quadratic equations, there are no real instances of these if the discriminant is negative. The number of positive or negative real ones can be bounded by Descartes' rule of signs. The fundamental theorem of algebra states all non-constant complex polynomials has at least one complex one of these. They can be found for quadratic equations by factoring or by using the quadratic equation. For 10 points, name these values for a polynomial that make the expression equal to zero.

ANSWER: roots [or solutions; or zeroes before mentioned]

121-12-71-06121

6. This man attempted to hurt belligerent nations economically through his Embargo Act, which he signed over the protests of Secretary of the Treasury Albert Gallatin. This President sent Robert Livingston and James Monroe to negotiate the purchase of a major port, though they ended up buying much more. In one work, this man claimed all men have "certain unalienable rights" including "life, liberty, and the pursuit of happiness." For 10 points, name this third President and primary author of the Declaration of Independence.  
ANSWER: Thomas **Jefferson**

121-12-71-06122

7. This American location was where the French performer "Blondin" performed his feats. In the 1800's, the *Caroline* was burned and destroyed at this location. It is spanned by the Rainbow Bridge, which was built after the collapse of the Honeymoon Bridge. Annie Edison Taylor used a barrel at this location in a daring 1901 publicity stunt. A popular tourist component at this location is named "Bridal Veil" and descends to the "Maid of the Mist Pool." For 10 points, name this waterfall located on the border between Ontario and New York.  
ANSWER: **Niagara** Falls

052-12-71-06123

8. The ruins of this ruler's so-called "Giant Ship" were found during the construction of Leonardo da Vinci International Airport. This ruler ordered the death of his cousin Gemellus. The son of Germanicus, this emperor was assassinated by the Praetorian Guard while he was addressing an acting troupe. This man's nickname means "little soldier's boot" and he reportedly tried to make his horse a consul. For 10 points, name this Roman emperor who succeeded Tiberius and who was noted for his cruelty and insanity.  
ANSWER: **Caligula** [or **Gaius** Julius Caesar Augustus Germanicus]

052-12-71-06124

9. This man was denounced by John Adams as someone "whose very looks was enough to terrify any person." This son of Prince Yonger was the subject of an advertisement in the *Gazette* placed by William Brown of Framingham in 1750. This whale ship crewman lay in state in Faneuil Hall for three days after his death. Now memorialized by a monument in Boston Common, he is often called the first martyr of the American Revolution. For 10 points, name this ex-slave who was killed in the Boston Massacre.  
ANSWER: Crispus **Attucks**

019-12-71-06125

10. The "fuming" form of this compound consists of it mixed with its anhydride, and is also called oleum. This compound is mixed with lead and lead (IV) oxide in a common type of rechargeable battery. Elemental carbon is formed when this compound reacts with sucrose. A vanadium oxide catalyst is used to produce this compound in the contact process. Superacids are defined to be stronger than a 100% concentrate of this compound, the only common strong diprotic acid. For 10 points, name this compound once known as oil of vitriol, with chemical formula H<sub>2</sub>SO<sub>4</sub>.  
ANSWER: **sulfuric** acid [or **H<sub>2</sub>SO<sub>4</sub>** before mentioned]

190-12-71-06126

11. This sect developed the Hanbali, Hanafi, Maliki and Shaafii schools of jurisprudence, or *fiqh*. According to this sect, the "six books" are the most authentic collections of *hadith*. This dominant religion of the Ottoman and Mughal Empires believes that the Ummayyad Caliphate was legitimate and that the four rightly-guided caliphs, including Ali, were Muhammad's rightful successors. For 10 points, name this Islamic sect to which 85% of Muslims belong, which sometimes clashes with the Shi'a.  
ANSWER: **Sunni** Islam [prompt on **Islam**]

080-12-71-06127

12. The protagonist of one story by this author has a chosen name that reminds her mother of "the broad blank hull of a battleship" and has a Ph.D. in philosophy. That character, Hulga, has her artificial leg stolen by a fake Bible salesman named Manley Pointer. This author also wrote a story in which the Grandmother and her family are murdered by the Misfit. For 10 points, name this female Southern author of "Good Country People" and "A Good Man Is Hard to Find."

ANSWER: Flannery **O'Connor** [or Mary Flannery **O'Connor**]

194-12-71-06128

13. A 1977 Nobel Prize was awarded to Nevill Mott for his work on the amorphous type of these materials, and the extrinsic type of them comes in n and p varieties. They possess "electron holes" after impurities are added to them in a process called "doping," and these materials are often crystalline solids. Examples of these materials include germanium and silicon. For 10 points, identify these materials which possess electrical conductivity between that of an insulator and that of a conductor.

ANSWER: **semiconductors**

189-12-71-06129

14. In one story by this author, the protagonist discovers the camp of the former boxer Ad Francis, who went crazy when his wife left him. This author of "The Battler" also created Lady Brett Ashley, who arouses the interests of the expatriates Robert Cohn and Jake Barnes in one of his novels. Another of his novels follows a World War I ambulance driver in the Italian army named Frederic Henry. For 10 points, name this American novelist of *The Sun Also Rises* and *A Farewell to Arms*.

ANSWER: Ernest **Hemingway** [or Ernest Miller **Hemingway**]

014-12-71-06130

15. In mass spectrometry, the first step of the MALDI technique uses one of these devices for desorption. Steven Chu won the 1997 Nobel Prize in Physics for his work in using these devices to cool and trap atoms, and these devices are used to produce a coherent and monochromatic beam of light. For 10 points, identify these devices which produce high-intensity radiation via the amplification of light, sometimes used in presentations to "point" to items on a screen.

ANSWER: **lasers** [or **Light Amplification through Stimulated Emission of Radiation**]

189-12-71-06131





1. Proposals put forth by this man include a 75% top tax rate and the hiring of 60,000 new teachers. This man served as mayor of Tulle and succeeded Lionel Jospin as leader of his party. His modest demeanor earned him the nickname “Monsieur Normal.” This man’s former partner, Segolene Royal, endorsed this man’s candidacy against a man who defeated Royal in a 2007 election. For 10 points, name this Socialist Party member who defeated Nicolas Sarkozy in 2012 to become the president of France.

ANSWER: Francois **Hollande**

030-12-71-06132

2. One type of this organ is composed of subunits called ommatidia. In humans, this organ’s hyaloid artery regresses, leaving a canal through the liquid vitreous humor within it, and its front is controlled by the ciliary muscle. A structure on the back of this organ contains the especially-effective fovea within an oval-shaped yellow spot that can undergo “degeneration” called the macula. For 10 points, name this organ lined by the rods and cones of the retina, which is used for vision.

ANSWER: the **eye**

104-12-71-06133

3. This country’s capital is the location of the Dennis Martinez National Stadium. Madera and Concepcion are two volcanic cones that form Ometepe Island in a lake named for this country, and Momotombo is a volcano located on the shores of a lake that shares its name with this country’s capital. This country’s cities of Bluefields and Puerto Cabezas are on its Mosquito Coast. The Coco River runs along this country’s northern border with Honduras. For 10 points, name this Central American country that has its capital at Managua.

ANSWER: **Nicaragua**

030-12-71-06134

4. One sequence in this film concludes with an increasingly close shot/reverse shot between one character’s face and *A Sunday Afternoon on the Island of La Grande Jatte*. That character becomes catatonic and almost drowns in a swimming pool after seeing the odometer on his father’s car. The protagonist of this film lip-syncs “Twist and Shout” in a parade in downtown Chicago while avoiding his Dean, Edward Rooney. For 10 points, name this John Hughes film in which Matthew Broderick plays the school-skipping title character.

ANSWER: **Ferris Bueller’s Day Off**

014-12-71-06135

5. The deprotonated form of this compound is an extremely strong base which can remove a proton from terminal alkynes. Its bond angle is predicted by VSEPR to be 107.5 degrees as a result of electron-electron repulsions caused by this compound’s nonbonding pair of electrons. Many weak bases are alkyl substituents of this compound, itself a weak base in solution. For 10 points, name this simplest amine, a gas commonly used in cleaning products, which has formula  $\text{NH}_3$ .

ANSWER: **ammonia** [or **NH3** before mentioned]

190-12-71-06136

What Cervantes character serves as governor of Barataria and acts as the squire of Don Quixote?

ANSWER: **Sancho** Panza [or Sancho **Panza**]