



1. This author tells of an attack "by three doors left unguarded" as "blue-eyed banditti" climb into his chair. This poet, who immortalized his daughters Alice, Allegra, and Edith in "The Children's Hour," also wrote a long poem set "by the shores of Gitche Gumee." In another poem, he described a character who feels "the secret dread of the lonely belfry and the dead" before sending a signal from the Old North Church. For 10 points, name this American poet of *The Song of Hiawatha* and "Paul Revere's Ride."

ANSWER: Henry Wadsworth **Longfellow**

105-12-55-04101

2. One side in this incident, led by Yellow Bird and Big Foot, was urged to resist because their shirts would protect them from gunfire. The other side in this event was led by James Forsyth. Eighty-three years after this event occurred, Russell Means of the AIM led a seventy-one-day standoff with federal agents at the site of this incident. This event occurred days after Sitting Bull was killed in reaction to the popularity of the Ghost Dance. For 10 points, name this 1890 massacre of about 150 Sioux in South Dakota.

ANSWER: **Wounded Knee** Massacre

131-12-55-04102

3. While living near the town of Templeton, this character clashes with Judge Marmaduke Temple and befriends the young hunter Oliver Edwards. In another novel, this character guides Cora and Alice Munro to their father's command and kills Magua to avenge the death of his friend Uncas. This character and his friend Chingachgook appear in *The Pioneers*, *The Pathfinder*, and *The Deerslayer*. For 10 points, name this rugged outdoorsman, the protagonist of *The Last of the Mohicans*.

ANSWER: **Natty** Bumppo [or Natty **Bumppo**; or **Nathaniel** Bumppo; prompt on **Hawkeye**; prompt on **Pathfinder**; prompt on **Leatherstocking**; prompt on **Deerslayer**]

015-12-55-04103

4. While in college, this politician began research on his historical work *The Naval War of 1812*. This politician accepted the Gentlemen's Agreement with Japan, admitted Oklahoma to the Union, and added his namesake corollary to the Monroe Doctrine. This man resigned as assistant secretary of the Navy to lead the Rough Riders, and as president his slogan was "Speak softly and carry a big stick." For 10 points, identify this President who succeeded William McKinley in 1901.

ANSWER: **Theodore** **Roosevelt** [or **Teddy** **Roosevelt**; or **TR**; prompt on **Roosevelt**]

126-12-55-04104

5. The residual type of this quantity remains when a system is cooled towards absolute zero. According to one definition, this quantity is proportional to the natural logarithm of the number of microstates. Change in this quantity can be measured as heat input over temperature, and, in an isolated system, this quantity increases over time according to the second law of thermodynamics. For 10 points, name this quantity, symbolized S, which is associated with the disorder of a system.

ANSWER: **entropy** [prompt on **S** before it is read]

014-12-55-04105

6. This historical figure was the subject of John Drinkwater's first successful play, and the 1938 Pulitzer in Drama went to a Robert Sherwood play about this man. In a Vachel Lindsay poem, this figure "walks at midnight." In one poem, the lament "O powerful fallen western star!" applies to him, while another poem portrays him as an officer "fallen cold and dead." For 10 points, name this subject of "When Lilacs Last in the Dooryard Bloom'd" and "O Captain! My Captain!", both written by Walt Whitman.

ANSWER: Abraham **Lincoln**

131-12-55-04106

7. Clay Shaw was tried for his alleged connection to this event as the mysterious caller "Clay Bertrand." One film of this event is a casual movie made by Abraham Zapruder. During this event, Governor Connally was injured by a shot coming from a nearby book depository. Shortly after this event, which was investigated by the Warren Commission, its perpetrator was murdered on live television by Jack Ruby. For 10 points, name this event in which Lee Harvey Oswald killed the sitting president in 1963.

ANSWER: **JFK Assassination** [or the John F. **Kennedy Assassination**; or equivalents that indicate **Kennedy** being **killed**]

080-12-55-04107

8. One character in this play writes a book on the domestic industries of Brabant, and another character mistakes the hat of Aunt Juliana for that of the housekeeper. This play's title character burns the manuscript on which Thea Elvsted collaborated with Eilert Lovborg. After being blackmailed by Judge Brack, the title character, George Tesman's wife, shoots herself with one of her father's pistols. For 10 points, name this Henrik Ibsen play about a general's daughter.

ANSWER: **Hedda Gabler**

141-12-55-04108

9. This man wrote about the role of *agon* (EY-gon), or competition, in Greek society in his essay "Homer's Contest," a thematic predecessor to *Daybreak: Reflections on Moral Prejudices*. One of his most famous quotations appears in *The Gay Science*. This thinker coined the term "will to power" in *Thus Spake Zarathustra* and contrasted Apollonian and Dionysian worldviews in *The Birth of Tragedy*. For 10 points, name this German philosopher who wrote about the Ubermensch and declared that "God is dead."

ANSWER: Friedrich Wilhelm **Nietzsche**

131-12-55-04109

10. In a play by this author, Winnie talks about inane topics while sinking into the ground. This author of *Happy Days* wrote another play in which a set that may be the inside of a human skull houses a couple who, after losing their legs in a bicycle-built-for-two accident, live in trash cans. This author of *Endgame* may be best known for a play in which Lucky alternates leading and following Pozzo. For 10 points, name this Irish author who created Vladimir and Estragon in the absurdist play *Waiting for Godot*.

ANSWER: Samuel Barclay **Beckett**

019-12-55-04110

11. This composer created one opera in which Telramund (TEL-rahm-und) accuses Elsa of murdering her brother the Duke, but she is defended by the titular knight. This composer attacked Giacomo Meyerbeer and Mendelssohn in an essay published under a pseudonym in a Leipzig journal. This composer of *Lohengrin* composed a series of operas, one of which contains the "Ride of the Valkyries." For 10 points, identify this anti-Semitic German opera composer of the Ring Cycle.

ANSWER: Richard **Wagner** (REE-kard VAHG-ner)

132-12-55-04111

12. One scene in this work sees Tubal report that a character has traded a ring for a monkey. Another character in this work is told that "all that glitters is not gold" and must remain unmarried forever, because he guesses a riddle incorrectly. Another character has a servant named Launcelot Gobbo, and is thwarted when the "Quality of Mercy" speech is delivered by Portia. For 10 points, name this Shakespeare play whose title character, Antonio, owes a "pound of flesh" to the Jewish moneylender Shylock.

ANSWER: *The Merchant of Venice*

142-12-55-04112

13. Aristarchus (ah-rih-STAR-kuhs) was an early proponent of this belief, which most Greeks rejected because of the lack of visible parallax. Thomas Kuhn has pointed out that when this model was introduced, it did not have greater predictive power than Ptolemy's model of epicycles, which it replaced. This view first reached a major European audience with the posthumous publication of *De Revolutionibus* (DAY rev-oh-loot-ee-OH-nib-uss). Descartes withheld a book that endorsed this view upon learning of Galileo's treatment by the Church. For 10 points, name this model in which the earth revolves around the sun.

ANSWER: heliocentrism [or obvious equivalents like "the model where the earth revolves around the sun" before "the earth revolves around the sun" is read]

121-12-55-04113

14. This literary figure called *Hamlet* "an artistic failure" and coined the term "objective correlative" in his essay "Hamlet and his Problems," which was collected in *The Sacred Wood*. This author wrote of women who "come and go talking of Michelangelo" in "The Love Song of J. Alfred Prufrock." He wrote a lengthy poem that references Chaucer with its opening line, "April is the cruelest month," part of the section "The Burial of the Dead." For 10 points, name this American poet of "The Waste Land."

ANSWER: Thomas Stearns Eliot

080-12-55-04114

15. Though it is not California, this state contains the "best-preserved meteorite crater on Earth," the Barringer Crater, which lies about forty miles from the San Francisco volcanic field. This state's town of Globe contains the Coolidge Dam on the Gila (HEE-lah) River, which lies near the reservations of the Navajo and Hopi. This is the southwestern member of the states that form the Four Corners. For 10 points, name this southwestern state where Flagstaff and Tucson are found.

ANSWER: Arizona

066-12-55-04115



1A. This is a 10-second calculation question. Given that a circle centered at the origin has an outer point at (3,4), what is the radius of the circle?

ANSWER: 5

1B. This is a 10-second calculation question. What is the mode of the data set {11, 23, 51, 75, 11, 34, 9, 61, 23}?

ANSWER: 11 and 23 [do not accept partial answer]

2A. What term refers to chemical structures that can interconvert and a type of frequency at which a system will vibrate at a greater amplitude than normal?

ANSWER: resonance [accept word forms like resonate]

2B. What Italian artist designed the colonnade in front of Saint Peter's Basilica and sculpted a swooning woman in *The Ecstasy of Saint Teresa*?

ANSWER: Gian Lorenzo Bernini

3A. What function in a computer program allows one to regain memory that was taken up by objects that no longer exist?

ANSWER: garbage collection

3B. A December 2011 speech on the expiration of the US security agreement with Iraq was given by what current Iraqi prime minister?.

ANSWER: Nouri Kamil Mohammed Hasan al-Maliki [or Jawad al-Maliki; or Abu Esraa]

4A. What poet of the Harlem Renaissance asked "What happens to a dream deferred?" and published the poetry collection *The Weary Blues*?

ANSWER: James Mercer Langston Hughes

4B. What Italian poet wrote of a journey through Hell under the guidance of Virgil in the *Inferno*, the first part of his *Divine Comedy*?

ANSWER: Dante Alighieri [or Dante Alighieri]

5A. This is a 20-second calculation question. In simplest form, find the roots of the quadratic equation $4x^2 - 5x + 12.5$.

ANSWER: 5/8 plus or minus 5/8 i square root of 7 [or 5 plus or minus 5 i square root of 7 all divided by 8]

5B. This is a 20-second calculation question. What is the cotangent of $\pi/3$ times the tangent of $\pi/6$?

ANSWER: 1/3

6A. What Muslim empire that ruled India for over two hundred years had rulers such as Shah Jahan, who built the Taj Mahal?

ANSWER: Mughal Dynasty [or Mogul Empire]

6B. What legislation passed under the Articles of Confederation organized American territory beyond the Ohio River and established a precedent for the creation of new states?

ANSWER: Northwest Ordinance of 1787

7A. This is a 30-second calculation question. Ed and Susan are both taking a class on the biochemistry of zerglings. If the probability that Ed attends class is 50%, the probability that Susan attends class is 98% and their absences are independent, what is the probability that only Ed is in class?

ANSWER: **1%** [or **0.01**; or **1/100**]

7B. This is a 30-second calculation question. Construct quadrilateral ABCD such that AB, BC, and CD each have length 4 units, AD is parallel to BC, and angle ABC is 135 degrees. What are the *two* possible values for the length of side AD?

ANSWER: **4** units and **4 plus 4** times the square **root** of **2** units [or **4 plus 4** times the square **root** of **2** units plus **4** units; **4+4*sqrt(2)** units for the second answer; prompt if only one answer is given]

8A. What type of rock is formed through the cooling of lava or magma?

ANSWER: **igneous** rock

8B. What comedian hosted an episode of *Saturday Night Live* in December 2011 after leaving the show in 2004 to host his own late-night NBC talk show?

ANSWER: James Thomas "Jimmy" **Fallon**

9A. What Vincent van Gogh painting shows a group of peasants having a meal around a dimly lit table?

ANSWER: *The **Potato Eaters***

9B. What NBA team is led by Kevin Durant and Russell Westbrook?

ANSWER: Oklahoma City **Thunder** [or **Oklahoma City** Thunder]

10A. What equation for the rate constant of a reaction includes temperature and activation energy in its exponential term?

ANSWER: **Arrhenius** (uh-RAY-nee-uhs) equation

10B. Gabriel Conroy experiences an epiphany in "The Dead," the last story in what collection by James Joyce?

ANSWER: **Dubliners**



1. This text describes a great star named Wormwood falling and poisoning many of the world's rivers. This book begins with seven letters to churches such as Philadelphia and Laodicea (lay-oh-DEE-see-uh) and was written on the island of Patmos. This text predicts the breaking of the seventh seal and many people receiving the mark of the beast, but it joyfully closes with the creation of the new heaven and earth. For 10 points, name this text which predicts the coming Apocalypse and is the final book of the New Testament. ANSWER: Book of **Revelation** of Saint John the Divine [do not accept "Revelations"; prompt on answers such as The **Bible** or The **New Testament** before "seven letters" is read]

052-12-55-04117

2. This country's popular tourist destination Cairns lies on Trinity Bay. Its northern coast is indented by the Gulf of Carpentaria, to the west of the Cape York Peninsula. This country is home to the Gibson Desert and Great Sandy Desert. Many oxbow lakes in this country are known as billabongs. Its Northern Territory contains the massive Ayers Rock, and its other regions include Queensland, Victoria, and New South Wales. For 10 points, name this country whose largest city is Sydney. ANSWER: **Australia**

015-12-55-04118

3. This region's namesake cliff occurs at the 1:2 resonance edge. Twotinos (too-TEE-nohs) and cubewanos (cube-WAH-nohs), of which Makemake (MAH-kay-MAH-kay) is the largest, are located in this region. Triton may have been captured from this region. The scattered disc intersects this toroid region. The moons Dysnomia and Charon, and their corresponding planets Eris and Pluto are also located here. For 10 points, name this region of the solar system beyond Neptune that is the origin of many short-period comets. ANSWER: Edgeworth-**Kuiper Belt** (KIE-per)

127-12-55-04119

4. Lamellae (LAH-muh-lay) are found within this organelle, in which cyclic electron flow occurs. The free space in this organelle is called the stroma, and it also contains many thylakoids (THIGH-luh-koids) arranged in stacks, or grana. A type of plastid, they are said to be descended from cyanobacteria that underwent endosymbiosis. Functions carried out by this organelle include the Calvin cycle and light absorption. For 10 points, name this plant organelle in which photosynthesis occurs. ANSWER: **chloroplast**

140-12-55-04120

5. In one opera by this man, a naiad (NYE-ad) sings a "Song to the Moon" after becoming human. This composer of *Rusalka* was inspired by the death of Josefa to compose his *Stabat Mater*. His *Slavonic Dances* are frequently performed by orchestras, but were originally for piano four hands. He used the tune of "Swing Low, Sweet Chariot" in a work that later sees an English horn play "Goin' Home." For 10 points, name this composer whose ninth symphony is nicknamed "From the New World." ANSWER: Antonin **Dvorak**

124-12-55-04121

6. Gain-of-function mutations in proto-oncogenes usually have this property. The malaria-resistant aspect of the sickle-cell trait has this property, which explains that trait's heterozygote (HET-ero-ZAI-goat) advantage. The ABO blood type system is an example of the "co-" form of this property. Pink snapdragons are an example of its incomplete form. An allele with this property is usually denoted with a capital letter. For 10 points, name this property of an allele that is expressed over a recessive allele.

ANSWER: **dominance** [accept word forms like **dominant** allele]

132-12-55-04122

7. This artist's debut was aided by a 2008 *Saturday Night Live* performance of a song in which she wonders, "should I just keep chasing pavements?" This singer laments "we were the greatest, me and you" in "I'll Be Waiting." A dancer in one of this artist's music videos twirls flour with a sword. A 2011 *SNL* sketch shows people crying to a song in which this artist insists, "I wish nothing but the best for you." For 10 points, name this British singer of "Rolling in the Deep" and "Someone Like You."

ANSWER: **Adele** Adkins

105-12-55-04123

8. Inhibitors of these molecules often work by mimicking a reaction's transition state. The specificity of the interactions involving these molecules is described by the "lock and key" model. The kinetics of these molecules is typically expressed using the Michaelis-Menten equation. One of these molecules that aids in the production of DNA is DNA polymerase (poh-LIH-mer-ase). Lysosomes contain a high number of these substances necessary for degrading worn out cellular structures. For 10 points, name these proteins that act as catalysts.

ANSWER: **enzymes**

105-12-55-04124

9. Two characters in this book are married in a prison by Father Vincent, who is also responsible for getting Mr. Carmichael to take the case of one of those characters in court. The main character of this novel originally travels into a city to check on his sister Gertrude before learning that Arthur Jarvis's murder has been blamed on his son Absalom. For 10 points, name this book about the country priest Stephen Kumalo written by South African author Alan Paton.

ANSWER: ***Cry, the Beloved Country***

023-12-55-04125

10. This thinker posited the Christian God's lack of a fourth, feminine dimension in his *Answer to Job*. He theorized introversion and extroversion as part of a personality theory which provided the basis for the Myers-Briggs Type Indicator. This psychologist's insistence that the libido was not a completely sexual force led to his split with Sigmund Freud. For 10 points, name this Swiss psychologist who theorized "archetypes" and the "collective unconscious."

ANSWER: Carl Gustav **Jung** (yung)

014-12-55-04126

11. Chebyshev's (CHEH-bee-shevs) inequality states that this quantity can vary from the expected value by no more than one sigma. The integral of a probability density function from this value to infinity equals one-half. For an even number of data points, computing this quantity requires averaging two of them. This quantity is equal to the second quartile and the fiftieth percentile. For 10 points, give the term for the value which separates the lower half of a set of data from the higher half.

ANSWER: **median**

126-12-55-04127

12. One of this emperor's lead ministers was called Peter the Patrician. This ruler's reign was documented by the historian Procopius. One rebellion during this emperor's rule sought to replace him with the senator Hypatius (high-PAY-shuss); those rebellions were the Nika Riots. This ruler's advisor Tribonian helped him revise the legal code of his empire. For 10 points, identify this husband of Theodora and Byzantine emperor who constructed the Hagia Sophia.

ANSWER: **Justinian I** [or **Justinian** the Great]

126-12-55-04128

13. This quantity can be described as the time derivative of linear momentum. These entities are divided into categories based on whether they can be associated with a potential energy; those categories are conservative and nonconservative. The rotational analogue of this quantity is torque. Friction and drag are types of this, which is equal to the product of mass and acceleration by Newton's second law. For 10 points, name this concept, the ability to change the motion of an object.

ANSWER: **force**

131-12-55-04129

14. This man's forces crushed the rebellion of Hereford the Wake at the Battle of Ely Isle. This ruler left one of his realms to his son Robert Curthose. One rival of this son of Robert the Devil lost forces in a victory at Stamford Bridge. This man's half brother Odo commissioned the Bayeux Tapestry. This commissioner of the Domesday (DOOMS-day) Book defeated Harold Godwinson at the Battle of Hastings in 1066. For 10 points, name this first Norman king of England.

ANSWER: **William the Conqueror** [or **William I**; or **William II of Normandy**; prompt on **William**]

131-12-55-04130

15. This god tricks a dwarf named Alvis into answering so many questions about the cosmos that he stays out in the sun and turns to stone, keeping him from marrying this god's daughter. This god has a chariot pulled by two goats. In one story, this god deceived Thrym by dressing himself as Freyja (FRAY-yuh), who Thrym had demanded as his wife to return a weapon to this god. This god wields Mjollnir (mee-YALL-near), a powerful hammer. For 10 points, name this Norse god of thunder.

ANSWER: **Thor**

088-12-55-04131



1. The "National Committee" of this present-day country replaced its namesake "Young" movement in 1848. That group displaced a secret society known as the "charcoal burners" that opposed the rule of Joachim Murat in this country. The Kingdom of Piedmont plotted the unification of this country, a movement which was called the "Risorgimento" and led by Count Cavour and the Redshirts. For 10 points, name this country that was united under Victor Emmanuel II following the efforts of Giuseppe Garibaldi.
ANSWER: Kingdom of **Italy**

019-12-55-04132

2. The use of this system was popularized by Kliment of Ohrid. The consonants of this writing system are derived from the Glagolitic alphabet, which was created by the partial namesake of this system. Derived from Greek letters, this writing system is the official alphabet for Kurdish, Tajik, and Bulgarian, for whose users this script was originally invented. For 10 points, name this alphabet used by many Orthodox churches as well as by writers of Russian.
ANSWER: **Cyrillic** alphabet

141-12-55-04133

3. A fifty-four story tower in this city is the key component of this city's Roppongi Hills complex. In November of 2011, this city's Sky Tree became the tallest tower in the world. This city has a bridge with 444 solar-powered lamps that can change colors, which led to the name of the Rainbow Bridge. The artificial island and shopping district Odaiba (oh-dah-EE-bah) and the business district Shiodome (shee-oh-DOH-may) are found here. For 10 points, name this largest city and capital of Japan.
ANSWER: **Tokyo**

023-12-55-04134

4. At angles greater than the critical angle, the "total internal" type of this process occurs. When the surface on which it occurs is smooth, the specular type of this process occurs. Surfaces can be coated with interference films to decrease the occurrence of this process, or with silver to increase it. The angle of a light ray after undergoing this process equals the angle of incidence. For 10 points, name this process that occurs when a wave bounces off an object like a mirror.
ANSWER: **reflection**

132-12-55-04135

5. In June 2011, the US Supreme Court overturned a law in this state that banned the sale of violent video games to minors. A 2011 law in this state requires that the history of LGBT individuals be taught in schools. Members of this state's Democratic Party have backed a ballot initiative to end this state's frequent reliance on ballot initiatives. In 2008, the citizens of this state banned same-sex marriage by passing one of those initiatives, Proposition 8. For 10 points, name this state where Jerry Brown won a second stint in the governor's office, succeeding Arnold Schwarzenegger.
ANSWER: **California**

105-12-55-04136

This is a calculation question. What is the reciprocal of 2 plus 2i?
ANSWER: **0.25 - 0.25i**

105-12-55-04137

Name this principle which states that an increase in speed accompanies a decrease in pressure for a fluid with no viscosity.

ANSWER: **Bernoulli's** principle

105-12-55-04137