



1. "Skinners" used a sledgehammer to drive a spike through the nose of these animals. It appeared in the nickname of the U.S. 10th Cavalry Regiment consisting of African-American soldiers. A now defunct type of nickel showed this American animal. These animals were killed in mass quantities by being driven over a cliff by tribes such as the Blackfeet. For 10 points, name this bovine animal, very important to Plains Indians tribes, which lent Wild West showman Bill Cody his nickname.

ANSWER: American buffalo [or bison]

052-13-90-01101

2. A perpetrator of this event may have murdered Brendan Mess and two others in Waltham on September 11, 2011. The missing Brown University student Sunil Tripathi was wrongly implicated in early reports on it. A perpetrator of this event was arrested after he hid in a boat in Watertown. *Rolling Stone* was criticized for printing a glamorous photo of that man, Dzhokhar (JOH-kar) Tsarnaev (ZAR-nev). For 10 points, name this terrorist attack on an April 15, 2013 sporting event.

ANSWER: Boston Marathon bombing

052-13-90-01102

3. One type of this tissue can be identified by the presence of intercalated discs. Troponin is found in two types of this tissue. Acetylcholine (uh-SEE-tuhl-CO-lean) binds to this tissue's nicotinic receptors after it receives action potentials that cause the release of calcium ions. Cells in this tissue are organized into sarcomeres, and are divided into smooth, cardiac, and skeletal types. For 10 points, name this tissue whose contraction is the source of movement for the body.

ANSWER: muscle tissue

140-13-90-01103

4. This planet was first mapped by the Italian Giovanni Schiaparelli. Its plateau of Tharsis is home to many large volcanoes, and it was once studied by the Viking program. This planet was supposedly home to "canals." Currently being explored by the *Opportunity* rover, it is home to the mountain Olympus Mons. For 10 points, name this planet with the moons Deimos and Phobos, which is known as the "Red Planet."

ANSWER: Mars

052-13-90-01104

5. This location included buildings at Monowitz, which housed workers for the I.G. Farben company. Its commander, Rudolf Hoss, ordered a sign reading "Work makes you free" to be placed over its entrance. This location was home to such prisoners as the author of *Man's Search for Meaning*, Viktor Frankl, and the author of *Night*, Elie Wiesel. Dr. Josef Mengele conducted his experiments here. For 10 points, name this notorious Nazi concentration camp located in what is now Poland.

ANSWER: Auschwitz [or Auschwitz-Birkenau; or Auschwitz-Monowitz]

052-13-90-01105

6. In this play, a drunken speech is accompanied by the shouting of the phrase "OCOMOGOSIAY!" One character in this play loses money to Willy Harris through a scheme to open up a liquor store, while another declines an offer to move to Africa. In this play, Joseph Asagai makes a marriage proposal to Beneatha, and the central family moves into an all-white neighborhood. For 10 points, name this play about the Younger family, written by Lorraine Hansbury.

ANSWER: A Raisin in the Sun

140-13-90-01106

7. To build a crucial component of one of these objects, Operation Hammertong sent the 501st Legion to Mygeeto to retrieve an energy crystal. During a battle around one of these objects, Admiral Piett's death in an kamikaze attack sent the *Executor* crashing into one of these things. Before being destroyed in the Battle of Yavin, one of these objects concentrated eight beams into a superlaser to destroy Alderaan. For 10 points, name these moon-sized space stations from the *Star Wars* universe.

ANSWER: **Death Stars**

233-13-90-01107

8. The protagonist of this play says that a man is "not the type that goes for jasmine perfume." That character angrily insists he is not "a Polack." This play begins with a former English teacher coming to live with relatives on a street named after the Elysian Fields. At the end of this play, the protagonist is led off to a mental institution while saying she has always depended on the kindness of strangers. In one scene, the brutish antagonist screams the name of his wife, Stella. For 10 points, name this Tennessee Williams play about Stanley Kowalski and Blanche DuBois.

ANSWER: A **Streetcar Named Desire**

052-13-90-01108

9. In the *Iliad*, this male god rescues Aeneas from Diomedes after Diomedes wounds Aphrodite. A statue of this god known as the "Belvedere" version may depict him just after slaying Python, who guarded the oracle at Delphi, which this god then made his own. This god pursued a woman who turned into a laurel tree named Daphne. This god was the son of Zeus and Leto. For 10 points, name this Greek god of light and music, the twin brother of Artemis.

ANSWER: **Apollo**

014-13-90-01109

10. This man called for a "kindler, gentler" America after winning an election in which he called his opponent a "card-carrying" ACLU member. This broccoli-hating president launched Operation Just Cause, which ousted Panamanian president Manuel Noriega. Failure to address an ongoing recession led to his defeat on the slogan "It's the economy, stupid!", even though he had previously won the Gulf War. For 10 points, name this president who oversaw the end of the Cold War before losing re-election to Bill Clinton.

ANSWER: George **H.W. Bush** [or George **Herbert Walker Bush**; or George **Bush, Sr.**; or answers specifying "the **older Bush**;" do not accept or prompt on "George W. Bush" or "Dubya"]

080-13-90-01110

11. Anecdotally, this man said if he could not be president, he could at least hold the president's hat when attending his rival's inauguration. In his Freeport Doctrine, he stressed that popular sovereignty could be used to outlaw slavery in the territories. This politician won re-election to the Illinois Senate in 1858. For 10 points, name this man known as the "Little Giant" who lost to Abraham Lincoln in the presidential election of 1860 and who had debated Lincoln in 1858.

ANSWER: Stephen Arnold **Douglas**

052-13-90-01111

12. In this film, a chorus girl jumps out of a cake to perform the song "Dream of You." The movie *The Dueling Cavalier* turns out to be a huge bomb for Monumental Pictures in this movie. In this film, silent film stars Don Lockwood and Lina Lamont become laughingstocks after the transition to "talkies" reveals that Lina cannot sing; Don performs a famous song and dance routine while splashing through the water and twirling an umbrella. For 10 points, name this musical comedy starring Gene Kelly.

ANSWER: **Singin' in the Rain**

080-13-90-01112

13. Observations of the binary system SS 433 helped verify one form of this effect, which was also studied with a canal ray tube in the Ives-Stilwell Experiment. This effect is described by an equation involving the frequency, relative velocity, and wave velocity, and it causes redshift and blueshift in distant stars. For 10 points, name this effect, in which a wave's frequency is changed when the source and observer are moving relative to each other.

ANSWER: **Doppler** Effect [or Transverse **Doppler** Effect; or relativistic **Doppler** Effect; prompt on "**redshift**" or "**blueshift**" before mentioned]

187-13-90-01113

14. With his uncle Bernard, this ruler led a campaign that defeated Lombard forces under Desiderius and gave their land to Pope Adrian III. This ruler's life was chronicled by the biographer Einhard. This king initially ruled with his brother, Carloman, until 771. This King of the Franks's grandsons, including Lothair and Louis the German, split his empire in the Treaty of Verdun. For 10 points, name this son of Pepin the Short who was crowned Emperor of the Romans by Leo III on Christmas Day 800.

ANSWER: **Charlemagne** [or **Charles the Great**; or **Carolus Magnus**; or **Charles I**; prompt on **Charles**]

186-13-90-01114

15. This was the family of a preacher known as "The Most Famous Man in America" who was busted in an affair with Elizabeth Tilton. That man's namesake "bibles" were rifles used in the fighting during Bleeding Kansas. It was the maiden name of the woman who married Calvin Stowe and was called by President Lincoln the "little lady who caused such a big war." For 10 points, name this family that included Harriet, the author of *Uncle Tom's Cabin*.

ANSWER: **Beecher** [do not accept or prompt on "Stowe"]

052-13-90-01115



1A. What branch of chemistry deals with the relative amounts of reactants and products in chemical reactions?

ANSWER: stoichiometry

1B. What artist included a controversial depiction of Lenin in his mural *Man at the Crossroads*?

ANSWER: Diego Rivera

2A. What “Mother City” of South Africa serves as that country’s legislative capital and is located near Table Mountain?

ANSWER: Cape Town

2B. What British author fought the Ottomans in World War I and wrote *Seven Pillars of Wisdom*?

ANSWER: Thomas Edward Lawrence [or Lawrence of Arabia]

3A. This is a 20-second calculation question. What are the coordinates of the vertex of the parabola “ $y = x^2 - 10x + 25$ ”?

ANSWER: (5,0) [or $x = 5$, $y = 0$; prompt on partial answer]

3B. This is a 20-second calculation question. Express the cotangent of 30 degrees in simplest form.

ANSWER: the square root of 3 [or radical 3]

4A. What language was used in the plays of Karel Capek (CHAH-pek) and Vaclav Havel?

ANSWER: Czech

4B. What data structure with "binary" and "red-black" forms consists of nodes linked to child nodes?

ANSWER: trees

5A. What nebula in the constellation Taurus was observed as a supernova by Chinese astronomers in 1054?

ANSWER: Crab Nebula

5B. Name the element that is normally found bound to ATP that is the central atom in the porphyrin ring of chlorophyll.

ANSWER: magnesium [or Mg]

6A. What is the point on the Earth’s surface directly above the focus of an earthquake?

ANSWER: epicenter

6B. What is the name of the “Godfather of Soul” who is the world’s most sampled musician and whose hits include “Cold Sweat” and “Night Train”?

ANSWER: James Brown

7A. The Japanese poetic form of haiku consists of how many distinct *on*, which are like syllables?

ANSWER: seventeen

7B. What German mathematician went mad after inventing set theory?

ANSWER: Georg Cantor

8A. Pioneers who traveled successfully on the Oregon Trail could have gone to what endpoint in Oregon, a valley with a namesake river that still holds most of the state’s population?

ANSWER: Willamette Valley

8B. What German composer wrote *Incidental Music to a Midsummer Night's Dream* and *Songs Without Words*?

ANSWER: Felix **Mendelssohn**

9A. This is a 30-second calculation question. Consider kite ABCD, in which angles A and C measure 105 degrees and angle B measures 90 degrees. If AB has length 2 units, then what is the length of CD?

ANSWER: **2** times the square **root** of **2** units [or **2 sqrt(2)** units]

9B. This is a 30-second calculation question. If the probability that it rains on any given day is 30% and each day's weather is independent from all other days' weather, what is the probability that it rains Saturday, rains Sunday, but does not rain on Monday?

ANSWER: **6.3%** [or **63/1000**; or **6.3/100**]

10A. What short story by Jorge Luis Borges describes a universe of hexagonal rooms filled with books which may or may not be meaningful?

ANSWER: "The **Library of Babel**" [or "La **biblioteca de Babel**"]

10B. What psychologist demonstrated that people would deliver lethal electric shocks when told to do so by a researcher in his namesake "obedience to authority" experiment?

ANSWER: Stanley **Milgram**



2013 VHSL Regular Season 1
Round 1
Third Period, Fifteen Tossups

1. In this organelle, plastoquinone acts as an electron acceptor for the cytochrome b6f complex. Proteins are transported across this organelle's membrane through the TIC and TOC complexes. This organelle is thought to have formed from endosymbiosis with cyanobacteria, and grana in it are formed from stacks of thylakoids. The stroma of this organelle is the site of the Calvin cycle. For 10 points, identify this plant organelle that is the site of photosynthesis.

ANSWER: chloroplasts [prompt on plastids]

146-13-90-01117

2. This man's first recorded solo was on the Dizzy Gillespie song "We Love to Boogie." McCoy Tyner, Jimmy Garrison, and Elvin Jones were the members of this man's namesake quartet. This man composed the song "Naima," named for his wife, as well as a variation of the Rodgers and Hammerstein song "My Favorite Things." His musical style was known as "sheets of sound." For 10 points, name this jazz saxophonist who composed *Giant Steps* and *A Love Supreme*.

ANSWER: John Coltrane

030-13-90-01118

3. In ancient Greek, this mood is used for the verb in the apodosis of a future-more-vivid conditional. In Latin, this mood is formed for first, second, and fourth conjugation verbs by adding the standard "o," "s," "t" endings to the verb stem. This mood is used to deal with factual information, as opposed to what the speaker would like to happen or what might have happened. For 10 points, name this basic verb mood used in sentences such as "Richard went to the store."

ANSWER: indicative mood

080-13-90-01119

4. Indium gallium nitride is used to create LEDs of this color. An indicator named for bromothymol and this color turns this color at basic pHs. A "great" sinkhole located off the coast of Belize is named for this color. Rigel is a supergiant of this color, which the hottest and most luminous stars have. Because methane dominates its atmosphere, Neptune appears this color from a distance. For 10 points, identify this color that names the whale that is the largest known animal.

ANSWER: blue

066-13-90-01120

5. This team's coach Hank Stram was miked up by NFL Films, which was the first time a coach wore a microphone in a Super Bowl. The founder of this team, Lamar Hunt, is the namesake of the AFC Championship trophy. This team was the loser of the first Super Bowl; more recently, this team won the division in 2003 with running back Priest Holmes. It is currently coached by Andy Reid. For 10 points, name this team that is a rival of the Denver Broncos and plays its games in Arrowhead Stadium.

ANSWER: Kansas City Chiefs [or Kansas City Chiefs]

030-13-90-01121

6. Branches of this religious group are called "mansions," and one important text of this faith consists of four books of Athlyi and is called the *Holy Piby*. Members of this faith reject "-isms," and they believe that shellfish and pork turn the body into a cemetery. This religion believes that corruption can be burned out of oneself through smoking cannabis. For 10 points, name this religion whose followers believe that Haile Selassie was a form of God, or Jah, and is popular in Jamaica.

ANSWER: **Rastafarianism**

141-13-90-01122

7. Nobility that were hereditary vassals of the founder of this government were known as *Fudai*. This government isolated its country from European influence by using the *sakoku* policy. During this governmental period, Matthew Perry's "Black Ships" landed in Osaka harbor and opened Japan to trade. This shogunate's founder defeated his rivals at the Battle of Sekigahara and was named Ieyasu. For 10 points, name this shogunate that was ended by the Meiji Restoration.

ANSWER: **Tokugawa** Shogunate

186-13-90-01123

8. The speaker of this poem mentions pausing before an edifice whose "roof was scarcely visible, the cornice but a mound," noting that the house seemed but "a swelling of the ground." That speaker also "passed the school, where children strove at recess, in the ring" while driving slowly, for the driver "knew no haste." The speaker gets in a carriage that "held but just ourselves and Immortality." For 10 points, identify this Emily Dickinson poem that begins when Death "kindly stopped for me."

ANSWER: **"Because I could not stop for Death"**

233-13-90-01124

9. One novel from this country ends with Maureen running towards a helicopter; that novel features the Smales family fleeing to the village of their servant July during a violent civil war. After receiving a letter from Theophilus Msimangu, Stephen Kumalo searches for his son Absalom in another novel set in this country. For 10 points, name this country home to Nadine Gordimer and Alan Paton, whose literature often focused on apartheid.

ANSWER: Republic of **South Africa**

226-13-90-01125

10. This landmass contains a lake thought to be similar to the ocean of Europa, Lake Vostok. Indented by the Weddell Sea and the Ross Sea, it contains a territory named for the wife of King Haakon VII, Queen Maud Land. Lincoln Ellsworth discovered this landmass's highest point, Vinson Massif; it also contains the volcano Mount Erebus. It contains research stations operated by various countries, but has no permanent population. For 10 points, name this least populous of the seven continents.

ANSWER: **Antarctica**

080-13-90-01126

11. According to Maxwell's equations, this number times the time derivative of the magnetic field is equal to the curl of the electric field. Reversing the operands of the vector cross product is equivalent to multiplying the components of the resultant vector by this number. Reversing a chemical reaction multiplies the value for enthalpy by this number. e to the power of $i\pi$ gives this number, whose square root is taken for the definition of the imaginary unit. It is the exponent of x for one over x . For 10 points, identify this integer that changes the sign of a number multiplied by it.

ANSWER: **negative one** [or **minus one**]

234-13-90-01127

12. This author included the character Elwin Ransom in novels of his *Space Trilogy* like *That Hideous Strength* and *Out of the Silent Planet*. The Pateient's death in an air raid leads to the failed temptor-demon Wormwood's consumption in this man's *The Screwtape Letters*. This author's most famous series of novels features the Pevensie children and includes the lion Aslan as a stand-in for Jesus. For 10 points, identify this devout Christian author of *The Chronicles of Narnia*.

ANSWER: Clive Staples **Lewis**

233-13-90-01128

13. In this novel, it is revealed that Debray gives confidential information to his lover to help her invest her husband's money in stocks. That accusation is dealt with by Villefort (vee-yuh-FORT), who realizes a letter given to this novel's protagonist by Napoleon is addressed to his father. With the assistance of Faria, that protagonist escapes that Chateau d'If (DEEF) and gains a fortune. For 10 points, identify this novel about Edmond Dantes written by Alexandre Dumas (doo-MAH).

ANSWER: *The **Count of Monte-Cristo*** [or *Le **Comte de Monte-Cristo***]

233-13-90-01129

14. This novel ends with a character receiving a letter reading “It is a great comfort to have you so rich” and requesting “a place at court.” It begins with the observation that a single man with a good fortune “must be in want of a wife.” The female protagonist is wooed by the foolish clergyman Mr. Collins and has such sisters as Lydia and Jane, who become involved with Mr. Wickham and Mr. Bingley. For 10 points, name this Jane Austen novel about Elizabeth Bennett and Mr. Darcy.

ANSWER: ***Pride and Prejudice***

052-13-90-01130

15. This hero was asked by his mother Aethra to move a giant boulder, under which he found a pair of sandals and a sword. This man married the Amazonian queen Hippolyta before falling in love with Phaedra, and he befriended Pirithous with whom he traveled to the underworld. This man forgot to change the color of his flag after leaving Ariadne on Naxos, which resulted in the death of his father Aegeus. For 10 points, name this Athenian hero who killed the Minotaur.

ANSWER: **Theseus**

227-13-90-01131



1. These organisms perform a dance roughly in the shape of a figure-eight, known as a waggle dance, to signal where food is located. The most commonly used species of this organism is *Apis mellifera* (AY-piss mell-uh-FAIR-uh). These eusocial organisms choose their leaders by only feeding them royal jelly. Neonicotinoid pesticides are the likely cause of the colony collapse disorder affecting them. For 10 points, name these insects, which store their namesake foodstuffs in a hive.

ANSWER: honey bees

140-13-90-01132

2. CNN correspondent Arwa Damon found the diary of one individual involved in this event. Jack Murphy and Brandon Webb compiled the "definitive report" on this event. Critics allege that Barack Obama took fourteen days to call this event a terrorist attack. Tyrone Woods, Glen Doherty, and Sean Smith died at this event, whose most famous casualty was ambassador Christopher Stevens. For 10 points, name this September 11, 2012 attack on a US facility in Libya.

ANSWER: attack on the US Consulate in Benghazi [prompt on attack on a US Consulate in Libya before it is mentioned; accept the killing of ambassador Christopher Stevens before it is mentioned]

020-13-90-01133

3. This unit is multiplied by meters per kilogram squared in the universal gravitational constant, and similarly by meters per Coulomb squared in the Coulomb constant. This unit is equal to ten to the fifth dynes, and electric field strength is measured in this unit per Coulomb. Impulse is expressed by this unit times a second, and torque by it times a meter. This unit can be expressed as a product of mass and acceleration, making it equivalent to one kilogram times one meter per second squared. For 10 points, name this unit used to measure force.

ANSWER: Newtons [or kilogram per meter per second squared until it read; prompt on force]

187-13-90-01134

4. Non-nucleophilic examples of these substances are used to catalyze the E2 reaction. One of these compounds, which is a mix of n-butyl-lithium and potassium t-butoxide, is named for Schlosser. Lithium di-isopropyl-amide is an example of the "super" type of these. These substances, which turn phenolphthalein pink, donate pairs of electrons in the Lewis definition, while they accept protons in the Bronstead-Lowry definition. For 10 points, name these substances like NaOH that have a pH above 7.

ANSWER: bases

048-13-90-01135

5. One character in this novel writes stories for the *Weekly Volcano*, but stops after learning of Professor Bhaer's disapproval. As children, the protagonists of this novel liked to act out scenes from *The Pilgrim's Progress*. One character in this novel nearly lets her sister drown while ice skating. Beth dies of scarlet fever in this novel, and Laurie marries Amy after being rejected by Jo. For 10 points, name this novel about the March sisters written by Louisa May Alcott.

ANSWER: Little Women

131-13-90-01136

What war of 1853 to 1856 saw Florence Nightengale care for wounded soldiers and battles such as Balaclava?

ANSWER: Crimean War

This is a calculation question. If x equals cosine squared 40 degrees and y equals cosine squared 50 degrees, what is x plus y ?

ANSWER: 1