1. This man's forces were attacked by John Bell Hood at Kolb's (COBZ) Farm and were defeated at the Battle of Kennesaw Mountain. This man took Billy Goat Hill but could not defeat Patrick Cleburne to take Missionary Ridge at the Third Battle of Chattanooga, where he commanded the Army of the Tennessee. General Johnston surrendered to this man a few days after Lee's surrender at Appomattox. For 10 points, name this general who captured Atlanta and then led his troops to Savannah in the "March to the Sea."
ANSWER: William Tecumseh **Sherman**

142-12-54-01101

2. EDTA detects metal ions in this procedure's complexometric (cahm-plex-oh-MEH-trick) form. For polyprotic (pah-lee-PRO-tick) acids, its graph possesses many inflection points at which neutralization occurs. This procedure uses an indicator such as phenolphthalein (fee-nol-THAY-lean), which turns pink in color at the equivalence points. To perform this procedure, one commonly uses a burette to drip an acid into a base or vice versa. For 10 points, name this laboratory technique for finding a solution's unknown concentration.
ANSWER: **titration** (tie-TRAY-shun)

079-12-54-01102

3. This was the team of the only National League player to win the hitting Triple Crown twice, Rogers Hornsby, during both years. Playoff games at this team's home ballpark featured appearances by the "Rally Squirrel." During one playoff series, this team's Most Valuable Player was third baseman David Freese. After the 2011 postseason, Mike Matheny replaced this team's longtime manager, Tony La Russa. For 10 points, name this team that won the 2011 World Series before losing free agent star Albert Pujols.
ANSWER: St. Louis **Cardinals** [or **St. Louis** Cardinals]

052-12-54-01103

4. When this man took office, he observed "the money changers have fled from their high seats." During a speech at a naval yard, he repeatedly stated "Look to Norway." This leader referred to Detroit as the "Arsenal of Democracy" and proclaimed everyone in the world should enjoy the "four freedoms," such as freedom from want and fear. For 10 points, name this president who proclaimed "the only thing we have to fear is fear itself" during his 1933 inauguration before starting his New Deal program.
ANSWER: **F**ranklin Delano **Roosevelt** [or **FDR**; prompt on **Roosevelt**]

052-12-54-01104

5. In one of this composer's ballets, Furbo resurrects a character from the *commedia dell'arte* (co-MAY-dee-uh dell AR-tay) named Pulcinella (pul-chi-NEH-lah). A bassoon solo opens another of his ballets, which includes the "Adoration of the Earth." In another of his ballets, Prince Ivan enters the realm of Kashchei (kahsh-CHAY) the Immortal and sees the "Infernal Dance." Diaghilev (dee-AH-gih-lev) commissioned this man to write a ballet that caused riots at its premiere. For 10 points, name this Russian composer of *The Firebird* and *The Rite of Spring*.
ANSWER: Igor **Stravinsky**

079-12-54-01105

6. This molecule is the lighter of the two molecules formed by the enzyme catalase (KAH-tuh-lays). This molecule forms a negative azeotrope (AY-zee-oh-trope) with hydrochloric acid and a positive azeotrope with ethanol. The molecule's triple point is used to define the Kelvin temperature scale. It is the conjugate acid of hydroxide ions. The Celsius scale is based on the boiling and freezing points of this molecule. For 10 points, name this "universal solvent" that covers about 70% of the Earth's surface.
ANSWER: **water** [or **H_2O**]

7. This man represented Lizzie Jennings in the case that ended discrimination on public transportation in New York. This signer of the Chinese Exclusion Act was a protege of Roscoe Conkling and became prominent as the collector of the New York City custom house. Despite his background in the Stalwart spoils system, he signed a bill for civil service reform called the Pendleton Act in 1883. For 10 points, name this Republican who succeeded to the presidency upon the assassination of James Garfield.
ANSWER: Chester Alan **Arthur**

8. A cancer affecting this organ results in "Orphan Annie" nuclei. Another disease affecting this organ causes the eyes to bulge. Graves' disease affects this organ, whose parafolliculuar (pah-rah-foh-LICK-yoo-lar) or C cells produce a hormone that reduces blood calcium called calcitonin (cal-sa-tone-in). Its namesake peroxidase (purr-OCKS-sih-days) helps produce two tyrosine (TIE-row-seen)-derived hormones called T3 and T4. Iodine deficiency causes a goiter in this organ. For 10 points, name this butterfly-shaped endocrine gland in the neck.
ANSWER: **thyroid** gland

9. In one of his poems, the speaker tells the title character, "Methinks I am myself the instrument thou playest!" Besides writing "The Mystic Trumpeter," he declared, "Flood-tide below me! I see you face to face!" in his poem "Crossing Brooklyn Ferry." His other poems include one in which he aims to "celebrate myself" and one in which the title character representing Abraham Lincoln lies "fallen cold and dead." For 10 points, name this American poet who wrote "Song of Myself" and "O Captain! My Captain!"
ANSWER: Walter **Whitman**

10. A mutation in this object results in diseases like Kearns-Sayre (curns-say-ur) syndrome. One enzyme in it contains F_0 (EFF-sub-zero) and F_1 components. Oxidative phosphorylation (fahs-for-ih-LAY-shun) occurs in this structure using energy derived from the electron transport chain. Within its matrix, the Krebs cycle takes place. The inner membrane of this object has highly folded components called cristae (CHRIS-tay). For 10 points, name this organelle which generates ATP and is known as the "power plant" of the cell.
ANSWER: **mitochondria** [or **mitochondrion**]

11. This author used such pseudonyms as Mustapha (moo-STAH-fah) Rub-a-Dub Keli Khan and Jonathan Oldstyle. For his *History of New York* he was Dietrick (dee-TRICK) Knickerbocker, and for his short story collection *The Sketchbook* he was Geoffrey Crayon. In that book, he created a man who takes his dog Wolf to the Catskills and returns twenty years later, in addition to a schoolteacher named Ichabod Crane who is pursued by the Headless Horseman. For 10 points, name this creator of Rip van Winkle and Sleepy Hollow.
ANSWER: Washington **Irving**

12. This man created a hierarchy of pleasures, which dealt with the hedonistic variety of a philosophy he espoused. With his wife Harriet Taylor, he co-wrote the early feminist tract "The Subjection of Women." In a political work, he stated that power should only be used to prevent harm to others. For 10 points, name this disciple of Jeremy Bentham who wrote *Utilitarianism* (you-TILL-it-AIR-ee-uhn-ISM) and *On Liberty.*
ANSWER: John Stuart **Mill**

13. The future passive infinitive in this language is formed by adding the word *iri* to the supine (SOO-pine). Necessity can be expressed by a gerundive in the passive periphrastic (PAIR-ee-PHRAS-tick) construction in this language, which expresses some subordinate clauses as ablative absolutes. Oblique forms distinguish its second- and fourth-declension masculines, which both end in *-us*. This language's late "vulgar" form is the ancestor of a family of modern languages including French. For 10 points, name this language of the ancient Romans.
ANSWER: **Latin** [or lingua **latine**]

14. In one story by this author, a waiter prays to "our nada who art in nada" after an old man lingers at a café. This author of "A Clean, Well-Lighted Place" featured Nick Adams in "The Killers." In one novel, he described the romance between Catherine Barkley and the World War I soldier Frederic Henry. In a novella, this author told of the boy Manolin returning to work with Santiago, who had caught a giant marlin. For 10 points, name this American author of *A Farewell to Arms* and *The Old Man and the Sea.*
ANSWER: Ernest Miller **Hemingway**

15. Two rare varities of these particles comprise the J/psi (Jay-Sy) meson. Free versions of these particles do not exist due to the phenomenon of confinement in QCD. Evidence for their existence was gathered through deep inelastic scattering experiments at SLAC. These particles have a non-integer electric charge as well as a color charge. They come in six flavors, including charm, top, and strange, and are held together by gluons. For 10 points, name this set of particles, three of which form a proton or neutron.
ANSWER: **quarks**

1A. This is a 10-second calculation question. Find the slope of the line 4x + 2y = 12.
ANSWER: **-2**

1B. This is a 10-second calculation question. If there is a 40% chance of rain on Saturday and a 50% chance of rain on Sunday, what is the chance the weekend is rain-free? Express your answer as a percentage.
ANSWER: **30%**

2A. What American President, a Whig, signed the Fugitive Slave Act and assumed office after the death of Zachary Taylor?
ANSWER: Millard **Fillmore**

2B. What group of elements has full outer valence electron shells and includes krypton, argon, and helium?
ANSWER: **noble gas**es [or **group 18** elements; prompt on **inert gas**es]

3A. What division of the autonomic nervous system regulates body functions that do not require immediate response, such as digestion?
ANSWER: **parasympathetic** nervous system

3B. Identify this Norse goddess of beauty who owns the necklace Brisingamen (bris-in-GAH-men) and a falcon-feather cloak.
ANSWER: **Freya** [or **Freyja**; or **Froya**]

4A. What Jewish holiday, the religion's holiest, involves the recitation of the Kol Nidre (coal NEE-dray) prayer and a fast that ends with the blowing of a shofar?
ANSWER: **Yom Kippur** [or **Day of Atonement**]

4B. What term is used to describe a type of function in computer programming that calls upon itself to solve a problem?
ANSWER: **recursion**

5A. This is a 20-second calculation question. Find all values of x such that 2 x squared minus 5 x plus 7 equals x squared plus 3 x minus 8.
ANSWER: **{3,5}** [or **x = 3 and x = 5**; do not accept or prompt on partial answer]

5B. This is a 20-second calculation question. A set of three numbers has minimum 1, median 4, and mean 8. What is the largest number in the set?
ANSWER: **19**

6A. What psychologist determined that infants develop the concept of object permanence at the end of the sensorimotor (SEN-ser-ee-MOH-ter) stage of development?
ANSWER: Jean **Piaget** (pee-uh-JAY)

6B. What Mormon GOP presidential candidate is a former Governor of Utah and ambassador to China?
ANSWER: Jon **Huntsman**

7A. This is a 30-second computation question. A regular hexagon is formed by attaching two trapezoids each with longest base length 4 units. What is the area of the hexagon? Express your answer in simplest radical form.
ANSWER: **6** times the square **root** of 3 units [or **6 rad 3**; or **6 square roots of 3**]

7B. This is a 30-second computation question. Put the following expression in the simplest equivalent form that contains only sines and cosines: square root of quantity cosecant squared x plus secant squared x.
ANSWER: plus or minus **one over the quantity sine x times cosine x** [or plus or minus **1/(sin x cos x)**]

8A. What country's military junta ran a "dirty war" against its own citizens and fought the United Kingdom over possession of the Falkland Islands?
ANSWER: **Argentina** [or **Argentine Republic**; or Republica **Argentina**]

8B. What Swedish scientist created the binomial nomenclature (by-NOME-ee-ul NO-men-clay-cher) in naming species and taxonomic hierarchy used for classifying them?
ANSWER: Carl **Linnaeus** (lih-NAY-uhs) [or Carolus **Linnaeus**; or Carolus **Linne**]

9A. Identify the U.S. state where Saginaw Bay and Sault Ste (SOO saint) Marie are located.
ANSWER: **Michigan**

9B. What series of video games features the characters Zoran Lazarevic (lah-zah-RAY-vich), Atoq (ay-TOCK) Navarro, Victor Sullivan, and adventurer Nathan Drake?
ANSWER: *Uncharted*

10A. "So" and "yet" are what part of speech that can be used to connect two independent clauses?
ANSWER: coordinating **conjunction**s

10B. What kind of geographic feature is divided into types such as eolic (ee-OH-lik), oxbow, and crater?
ANSWER: **lake**s

1. One work by this man features the "Scene by the Brook," an extended cadenza in which solo wind instruments imitate a nightingale, a quail, and a cuckoo. A symphony in C minor by this composer opens with what he apocryphally called "Fate knocking at the door." Those two works by this composer are his Pastoral Symphony and his Fifth. His last completed symphony was his ninth, which ends with a choral setting of the "Ode to Joy." For 10 points, name this German composer who slowly went deaf.
ANSWER: Ludwig van **Beethoven**

023-12-54-01117

2. Two characters in this work pretend to be Peter Wilks's brothers from England. Smoke rises from Jackson's Island, so a woman tells her husband to go there for a bounty before unmasking the boy who pretends to be Sarah Mary Williams. The protagonists of this work find the wreck of the Walter Scott Steamboat, and they are identified by Aunt Polly while staying with the Phelpses. This work's title character flees on a raft with the runaway slave Jim. For 10 points, name this Mark Twain novel about a friend of Tom Sawyer.
ANSWER: *The Adventures of **Huckleberry Finn*** [or ***Huck Finn***]

124-12-54-01118

3. The Maxwell-Boltzmann (BOLTS-men) distribution describes the "root mean square" of this quantity for classical gases. In fluids, vorticity is the curl of this quantity, which increases as pressure decreases according to the Bernoulli (BURR-new-lee) principle. Jerk is the second time derivative of this quantity, whose first time derivative is acceleration. For 10 points, name this quantity that describes the rate of change of position, the vector analogue of speed.
ANSWER: **velocity** [accept **speed** until "vector" is read]

079-12-54-01119

4. This country's tourism center contains the scenic Chapman Peak Drive and False Bay. Bloemfontein (BLOM-fawn-TAYN) is the capital of this country's Free State province and serves as the country's judicial capital. The Limpopo River separates it from Zimbabwe and Botswana. The Drakensberg (DRAY-kinz-berg) range runs through this country and Lesotho (lay-SO-to), which this country completely surrounds. To the west of the Drakensberg is the plateau of Highveld, which contains Pretoria and Johannesburg. For 10 points, name this country, the home of Cape Town.
ANSWER: Republic of **South Africa** [do not prompt on "Africa"]

121-12-54-01120

5. In one novel by this author, the many debates between a humanist Italian and a Jesuit who converted from Judaism lead those two men, Settembrini and Naphta, to duel. Another work by this author focuses on a writer who becomes obsessed with the Polish boy Tadzio (TOD-zee-oh). This man wrote about Hans Castorp's trip to a Swiss sanatorium and about Gustav von Aschenbach's (OSH-en-bock) death from cholera in the title Italian city. For 10 points, name this German author of *The Magic Mountain* and the novella *Death in Venice.*
ANSWER: Thomas **Mann**

023-12-54-01121

6. In 1802, while attempting to climb a peak in this range, Alexander von Humboldt set a world record for achieving altitude. The highest peak in this range is known as the "White Sentinel" and can be climbed using the Polish Glacier route. This range was the site of a former major silver mine at Potosi. Its central portion is home to a plateau called the "Altiplano." It features such peaks as Chimborazo (CHEEM-boe-RAZ-oh) and its highest peak, Aconcagua (ah-con-KAH-gwa). For 10 points, name this mountain range on the west coast of South America.
ANSWER: the **Andes** Mountains

7. A British ad campaign similar to the American "GEICO gecko" features one of these animals named Aleksandr Orlov. In a TV show, these animals include Tosca, Yossarian, and Shakespeare, who are led by Flower in the Whiskers group. In a film series, one of these animals, voiced by Nathan Lane, is taught about "hakuna matata" by Rafiki and is the constant companion of a warthog named Pumbaa. For 10 points, identify this animal which is the subject of an Animal Planet series about its "manor" and is the species of *The Lion King*'s Timon.
ANSWER: **meerkat**s

8. This author wrote a play in which the title character shoots at and misses Yelena's husband Professor Serebryakov (sair-uh-BRY-uh-koff). One of his other plays features the successful writer Trigorin and Konstantin Treplev, who shoots the title animal and later kills himself. This man wrote a play in which the aristocratic Madame Ranevskaya (ran-eff-SKY-uh) and her family lose their estate and the title entity is chopped down. For 10 points, name this Russian playwright who penned *Uncle Vanya, The Seagull,* and *The Cherry Orchard.*
ANSWER: Anton Pavlovich **Chekhov**

9. The imaginary part of de Moivre's (day MOH-vray) formula contains this function. Its hyperbolic form is equal to one half the difference of e^x and e^{-x}. The small angle approximation makes use of the similarity between this function and its argument for sufficiently small angles. It is the multiplicative inverse of cosecant (koh-SEE-cant) and its derivative is cosine. For 10 points, name this trigonometric function that for a given angle in a right triangle is the ratio of the opposite side to the hypotenuse.
ANSWER: **sine**

10. This poet described a woman who "weaveth steadily" and lives in a tower surrounded by "long fields of barley and of rye" before she sees Lancelot. This poet described the title people from the *Odyssey* as "mild-eyed melancholy" in "The Lotos-Eaters." This author of "The Lady of Shalott" wondered, "When can their glory fade?" after describing men who boldly rode "half a league, half a league onward." For 10 points, name this British poet who wrote "The Charge of the Light Brigade."
ANSWER: Alfred, Lord **Tennyson**

11. This artist created a painting in which the Apostles, Mary, and God make up three distinct layers. Another painting by this artist shows a servant reaching out a cloth to catch yellow specks before they reach a naked woman. In addition to painting *Assumption of the Virgin* and *Danae and the Shower of Gold*, this artist painted *The Rape of Europa*, which was copied by Rubens, as well as a work which features a dog sleeping near a naked woman lying on a bed. For 10 points, name the artist of *Venus of Urbino*.
ANSWER: **Titian** (TI-shun) [or **Tiziano** Vecellio]

12. This poet exclaimed, "Milton! thou shouldst be living at this hour!" The narrator of one of his poems would "rather be a pagan suckled in a creed outworn." This author of the sonnets "London, 1802" and "The World Is Too Much with Us" described a "host of golden daffodils" in "I Wandered Lonely as a Cloud." He wrote that five years had passed since seeing the title structure in "Tintern Abbey." For 10 points, names this British poet who collaborated with Samuel Taylor Coleridge on *Lyrical Ballads.*
ANSWER: William **Wordsworth**

13. The losers of this battle, including the frydmen (FREED-men) and the housecarls, made a wall of shields. The victors of this battle landed at Pevensey. The losers had previously defeated Harald Hardrada and Tostig at Stamford Bridge. The Bayeux (BYE-oo) Tapestry shows the losing commander, Harold Godwinson, being struck in the eye with an arrow. For 10 points, name this 1066 victory for William the Conqueror that was the culmination of the Norman conquest of England.
ANSWER: Battle of **Hastings**

14. When he goes to court, this character is opposed by the mysterious Balthasar, who bears a letter from the offstage character Doctor Bellario. In one monologue, he asks, "If you prick us, do we not bleed?" This character's daughter Jessica runs away with Lorenzo. His revenge is thwarted when Portia (poar-SHUH) points out that his contract does not allow for him to exact any blood along with the pound of flesh promised by Antonio. For 10 points, name this character from *The Merchant of Venice,* a Jewish moneylender.
ANSWER: **Shylock**

15. After this leader's armies conquered one country, several months of the so-called "Phoney War" ensued. This leader was targeted by a bomb in the July 20 plot of Claus von Stauffenberg (STOW-fen-burg). He dictated one work to his deputy, Rudolf Hess. That work was this man's autobiography, translated as *My Struggle*, written while he was in prison after the Munich Beer Hall Putsch (PUSH). For 10 points, name this author of *Mein Kampf* ("mine" kahmpf), who was the Nazi leader of Germany during World War II.
ANSWER: Adolf **Hitler**

1. One of this man's poems relates how the "invisible worm that flies in the night" has found the addressee's "bed of crimson joy." This poet of "The Sick Rose" also asked the title creature, "Dost thou know who made thee" in another poem. This poet asked, "What the hammer, what the chain, in what furnace was thy brain?" and "What immortal hand or eye dare frame thy fearful symmetry?" For 10 points, name this Romantic poet of *Songs of Innocence* and *Songs of Experience,* which include "The Lamb" and "The Tyger."
ANSWER: William **Blake**

080-12-54-01132

2. This ruler assisted the founder of the Vietnamese Nguyen (WIN) dynasty. This ruler dismissed his economic minister Turgot (tur-GO) after his unpopular reforms and replaced him with Necker. This king called the first meeting since 1614 of the Estates General, causing a series of events that led to the Tennis Court Oath. This man was found guilty in a vote by the National Convention and sentenced to death. For 10 points, name this French king and husband of Marie Antoinette who was guillotined in 1793.
ANSWER: **Louis XVI** of France [or **Louis-Auguste, duc de Berry**; prompt on **Louis**]

064-12-54-01133

3. This celestial object has a feature called the Aitken basin, which is about eight miles deep. This object was examined by Chandrayaan-1 (chan-druh-YAH-uhn). One hypothesis proposes that it was created by a collision between a planet and body sometimes called Theia (THAY-ee-uh), which was about the size of Mars. This object is home to large basaltic plains referred to as "maria," which include the Sea of Tranquility. For 10 points, identify this astronomical object explored by Apollo 11, which is the only satellite of the Earth.
ANSWER: the Earth's **Moon**

052-12-54-01134

4. In February, this country saw the arrest of several members of the April 6th Youth Movement. This country is ruled by the interim government of the Supreme Council of the Armed Forces, who have promised to hold free elections. In November 2011, three American students were arrested here after throwing Molotov cocktails at police near Tahrir Square. For 10 points, name this Middle Eastern nation where Hosni Mubarak was ousted from power in 2011 following massive protests in Cairo.
ANSWER: Arab Republic of **Egypt**

064-12-54-01135

5. In Benjamin West's *The Death of General Wolfe*, a runner approaching from the left is carrying one of these objects in his left hand, and a larger one of these objects is carried by a soldier standing above the fallen general. Pop artist Jasper Johns is most famous for paintings of these objects. One of these objects is held by a bare-breasted woman next to a boy carrying two pistols in Delacroix's (de-luh-KWA) *Liberty Leading the People*. For 10 points, name these objects, one of which was created by Betsy Ross.
ANSWER: **flag**s [or American **flag**s; or French **flag**s]

080-12-54-01136

This is a calculation question. What are the coordinates of the vertex of a parabola with equation "y equals x squared plus 4 x minus 5?"
ANSWER: **(-2, -9)**

080-12-54-01137

What disease, diagnosed using a sweat test, is a recessive genetic disorder which causes thick mucus and difficulty breathing?
ANSWER: **c**ystic **f**ibrosis