



1. A non-inertial reference frame is defined as doing *this* relative to an inertial one. When a particle goes through this, it can create a form of radiation known as brehmsstrahlung. In circular motion, the vector for this quantity is drawn towards the center. The change in this quantity is called jerk, and in Newton's Second Law, it is equal to Force divided by mass. For 10 points, name this quantity, which can be found by dividing velocity by time and is basically speeding up or slowing down.

ANSWER: **acceleration** [or **deceleration**]

140-11-44-09101

2. This country's town of Mae Hong Son is called the "City of the Three Mists" because it is perpetually covered in fog. Residents of this country celebrate the New Year in the Songkran Festival, which lasts for almost a week in its city of Chiang Mai. This country borders Malaysia to the south, and its northern borders with Laos and Myanmar are partially formed by the Mekong River. For 10 points, name this Southeast Asian country which saw October 2011 floods threaten Bangkok.

ANSWER: **Thailand**

015-11-44-09102

3. This hero fathered twins with Hypsipyle, the queen of a race of foul-smelling women who had killed their husbands. He's not Cadmus, but this man killed a dragon and sowed its teeth to obtain a treasure belonging to King Aeetes of Colchis. Later, this man was betrothed to the princess Glauce, whom his former wife killed using a poisoned dress. The witch Medea fell in love with this man, who abandoned her. For 10 points, name this leader of the Argonauts who obtained the Golden Fleece.

ANSWER: **Jason**

080-11-44-09103

4. In "Observations on the Effects of the Corn Laws," this man argued that, due to the increasing price of British corn, it would be better to supplement the supply with foreign corn. Because of this man's most famous work, Britain implemented the 1800 Census Act. His *An Essay on Human Population* predicted arithmetical growth in food supply but geometrical growth in population. For 10 points, name this man whose prophecies of mass starvation did not come to pass.

ANSWER: Thomas **Malthus**

135-11-44-09104

5. This composer required basses to hit the third B-flat below middle C in the fifth movement of his *a cappella* choral composition *All-Night Vigil*. This composer also composed a choral symphony based on Konstantin Balmont's translation of Edgar Allan Poe's poem "The Bells". This composer wrote a notable *Prelude in C sharp minor*, as well as a symphonic poem inspired by Bocklin's *Isle of the Dead*. For 10 points, identify this Russian composer of *Rhapsody on a Theme of Paganini*.

ANSWER: Sergei Vasilievich **Rachmaninoff**

126-11-44-09105

6. During one of this man's political campaigns, his opponents asserted that his marriage to his wife Rachel Donelson was illegal. This man used the Force Bill to ensure payment of tariffs and also vetoed the Maysville Road project. Despite Nicholas Biddle's efforts, this man destroyed the Second Bank of the U.S. This man lost the Election of 1824 because of what he saw as Adams' and Clay's Corrupt Bargain. For 10 points, name this winner of the Battle of New Orleans and seventh President.

ANSWER: Andrew **Jackson**

105-11-44-09106

7. This author wrote about an encounter with the Eloi, who are eaten by the subterranean Morlocks, described by an unnamed narrator. This author began another work in Iping at the Coach and Horses Inn, where a man wrapped up in bandages named Griffin abuses a power he gained from a successful experiment on his skin. In another of his novels, mysterious cylinders land on Earth before heat-ray-emitting Martians are defeated by bacteria. For 10 points, name this British author of *The Time Machine*, *The Invisible Man*, and *The War of the Worlds*.

ANSWER: Herbert George **Wells**

023-11-44-09107

8. Frank Rizzo was a controversial mayor of this U.S. city during the 1970s. It was controlled by a political machine based around the Gas Trust after the Civil War. The Paxton Boys were repulsed in their effort to kill Native Americans around this city during Pontiac's Rebellion. The nearby Battle of Brandywine allowed the British to capture this city, and the Battle of Germantown was fought near this city as well. For 10 points, name this city, a one-time capital of the U.S. and the site of Independence Hall.

ANSWER: **Philadelphia**

040-11-44-09108

9. This artist showed Hersilia jumping between the forces of Titus Tatius and Romulus in his *The Intervention of the Sabine Women*. Plato sits mournfully at the edge of a bed in a work by this man which depicts a philosopher about to drink hemlock. In another of his paintings, a man is slumped over in his bath with a note in his hand that contains the name of Charlotte Corday. For 10 points, name this French Neoclassical painter of *The Death of Socrates* and *The Death of Marat*.

ANSWER: Jacques-Louis **David** (dah-VEED)

066-11-44-09109

10. The Shamokin Uprising was part of one of these events that saw John Carroll, the governor of Maryland, quell violence in Baltimore before it was ended by the actions of Rutherford B. Hayes. Another of these events troubled the governorship of John Altgeld, was led by Eugene Debs, and was ended after Grover Cleveland called in federal troops on the pretext that it was blocking mail delivery service. Those examples of this type of event are the Great Railroad one of 1877 and the Pullman one. For 10 points, name this type of event in which laborers refuse to go to work.

ANSWER: **strikes** [accept **Great Railroad Strike** of 1877 or **Pullman Strike** before either is named]

040-11-44-09110

11. This video game series added a component in 2009 that lets gamers buy Bronze, Silver, or Gold card packs on the way to organizing players into an "Ultimate Team." The newest game in this series replaced the old "press" system with a new Tactical Defending system. That newest game in this video game series also brought in Alan Smith as a commentator, replacing Andy Gray and keeping Martin Tyler. For 10 points, name this EA Sports gaming series that allows gamers to play as or manage a soccer team.

ANSWER: **FIFA** Soccer [or **FIFA** 09; or **FIFA** 12]

023-11-44-09111

12. This man served in the Mexican-American War, in which he found a route for Winfield Scott to use on the march to Mexico City. A former superintendent at West Point, this man defeated John Pope at the site of an earlier victory for PGT Beauregard. Another victory for this man came when he separated his two corps and surprised Joe Hooker at Chancellorsville. Defeated in an 1863 battle following Pickett's Charge, for 10 points, name this general who was forced to surrender his Army of Northern Virginia at Appomattox Courthouse at the end of the Civil War.

ANSWER: Robert Edward **Lee**

141-11-44-09112

13. This man wrote a work to commemorate the death of the wife of John of Gaunt called *The Book of the Duchess*. In one story written by this man, Nicholas and Alison fool her husband John into thinking a biblical-sized flood is coming so that they can sleep together. Another story by this author sees Theseus preside over a contest for the love of Emily between Palamon and Arcite (ARK-ih-tay). Those stories are narrated by the Miller and the Knight. For 10 points, name this poet of *The Canterbury Tales*.

ANSWER: Geoffrey **Chaucer**

023-11-44-09113

14. In 1998, this leader was appointed the director of the Federal Security Service. He was responsible for the death of Aslan Maskhadov and Abdul-Halim Sadulayev during the Second Chechen War. He succeeded Boris Yeltsin as president, and he himself was succeeded by his heir apparent Dimitry Medvedev. For 10 points, name this Russian politician who took the office of prime minister in 2008.

ANSWER: Vladimir Vladimirovich **Putin**

130-11-44-09114

15. One character in this novel compares the mental capacity of a thinker to the ability to recite the alphabet, but worries that he cannot get past Q. In this novel, the poet Augustus Carmichael initially appears to be a failure, but gains popularity during World War I. In the final section of this novel, which follows "The Window" and "Time Passes," Lily Briscoe finishes her painting as the central family sails to the title structure. For 10 points, name this novel about the Ramsay family by Virginia Woolf.

ANSWER: ***To the Lighthouse***

080-11-44-09115



1A. This is a 10-second computation question. What is the cotangent of 30 degrees? Express your answer in simplest radical form.

ANSWER: $\sqrt{3}$

1B. This is a 10-second calculation question. What is the x-intercept of the line given by the equation $y = 6x - 12$?

ANSWER: $x = \underline{2}$

2A. What Nobel Prize-winning Chilean poet wrote the collection *Twenty Love Poems and a Song of Despair*?

ANSWER: Pablo Neruda [or Neftali Ricardo Reyes Basoalto]

2B. What group of writers, typically considered to have come of age during World War I, counted Ernest Hemingway, Gertrude Stein, and F. Scott Fitzgerald among its members?

ANSWER: The Lost Generation

3A. Planck's constant times velocity gives the energy of what particles of electromagnetic radiation that behave as both a wave and a particle in light?

ANSWER: photons

3B. What cowboy folk hero named for a Texas river was raised by coyotes, rode a mountain lion, and used a rattlesnake for a lasso?

ANSWER: Pecos Bill

4A. Kol Nidre begins the observance of what Jewish day of atonement, which occurs ten days after Rosh Hashanah?

ANSWER: Yom Kippur

4B. Which winner of the FIS World Cup in 2008 founded his own "Team America" after leaving the U.S. Ski Team, but is better known for racing drunk or with a hangover?

ANSWER: Bode Miller

5A. What linguistic term refers to the vowel change between the words "foot" and "feet", or to two dots above a vowel in German?

ANSWER: umlaut

5B. What country's name is a neologism coined by Choudhary Rahmat Ali in 1933, which means "land of the pure" in Urdu and Persian and is an acronym for five of its provinces?

ANSWER: Islamic Republic of Pakistan

6A. This is a 20-second computation question. What is the surface area of a sphere formed by rotating a circle of diameter 6 around its diameter? Express your answer in terms of pi.

ANSWER: 36π

6B. This is a 20-second computation question. Solve for theta on the interval theta is between 90 and 270 degrees. Sin theta equals cos theta.

ANSWER: 225 degrees

7A. What lake, considered the "sixth Great Lake," lies between New York and Vermont?

ANSWER: Lake Champlain

7B. What cable network now airs *Futurama*, as well as *South Park*, *The Daily Show with Jon Stewart* and *The Colbert Report*?

ANSWER: **Comedy Central**

8A. What form of electromagnetic radiation with wavelengths roughly between 400 and 700 nanometers has an energy between ultraviolet and infrared radiation?

ANSWER: visible **light**

8B. The iconic photograph *Moon and Half Dome* was taken by what black-and-white photographer noted for his pictures of the American West and Yosemite Valley?

ANSWER: Ansel Easton **Adams**

9A. This is a 30-second computation question. Find the sample standard deviation of the set: {2, 6, 8, 12, 17}. Express your answer in simplest radical form.

ANSWER: **sqrt(33)/2** [do not accept answers involving "square root of 132"]

9B. This is a 30-second calculation question. What is the distance between the points (3, 1, 8) and (5, 9, 10) in simplest form?

ANSWER: **6** time the square **root** of **2**

10A. John Mauchly and Presper Eckert oversaw the creation of what first electronic, general purpose computer in 1946 that was originally meant to produce ballistic tables in World War II?

ANSWER: **ENIAC** [or **Electronic Numerical Integrator and Calculator**]

10B. This type of function is exemplified by sine. What is this type of function that satisfies the equation f of negative x is equal to negative f of x ?

ANSWER: **odd** function



1. In one work by this man, the speaker heads toward the reef of Norman's Woe, while in another work, the children come home to see the title character's "flaming forge." In addition to "The Wreck of the Hesperus" and "The Village Blacksmith," he wrote a work that begins with the line, "This is the forest primeval." Gitche Manito prophesizes the arrival of the title character of another poem. For 10 points, name this American poet who wrote *Evangeline* and *The Song of Hiawatha*.

ANSWER: Henry Wadsworth Longfellow

127-11-44-09117

2. This scientist's most significant theory was first put forth jointly with Alfred Russel Wallace after receiving a letter from Wallace proposing the same theory. That work took place on his expedition with the HMS *Beagle*. That expedition saw him propose a theory to explain the different functionality of his namesake finches' beaks. For 10 points, name this English naturalist who proposed the process of natural selection in his book *On the Origin of Species* after visiting the Galapagos Islands.

ANSWER: Charles Darwin

066-11-44-09118

3. Rulers of this city were known as tlatoani. Pedro de Alvarado massacred this city's inhabitants during a festival after its captor left to fight Panfilo de Narvaez. This city formed the Triple Alliance with the Acolhua and the Tepaneca. The Templo Mayor was located in this city that was twice flooded by Lake Texcoco. La Noche Triste occurred when Hernan Cortes and his men fled this city after killing its king Montezuma. For 10 points, name this central city of the Aztec empire.

ANSWER: Tenochtitlan

124-11-44-09119

4. This character chooses the Manichean Martin as a traveling companion, as he finds Martin to be the most dissatisfied person in the province. This character washes up by Lisbon after a shipwreck, only to be caught in an earthquake and later nearly burned by the Inquisition. At the end of the work in which he appears, this man lives on a small farm with Cunegonde and his tutor, Dr. Pangloss. For 10 points, name this protagonist of a namesake novella by Voltaire.

ANSWER: Candide

121-11-44-09120

5. ?In October 2011, B. Todd Jones was appointed as the acting director of this agency, as Andrew Traver continues to await Senate confirmation. Jones is dealing with a scandal facing this agency that involved the intentional creation of "straw purchases" in Operation Fast and Furious. This Treasury Department subsidiary was attempting to track the use of weapons by Mexican drug cartels. For 10 points, name this agency which enforces federal laws regarding four heavily regulated items.

ANSWER: the ATF [or the Bureau of Alcohol, Tobacco, Firearms and Explosives]

019-11-44-09121

6. A person with this profession harbors the killer Leggatt in Joseph Conrad's *The Secret Sharer*. Another person with this job has a brother named Death in the same line of work, and clashes with Humphrey van Weyden in a Jack London novel. That one is Wolf Larsen. A different character with this title employs the mysterious Fedallah and receives a new ivory leg before shouting "from hell's heart I stab at thee" at a white whale. For 10 points, what is this title, borne by Ahab in *Moby-Dick*?

ANSWER: ship **captains** [prompt on answers such as **sailors** or **seamen** before "title" is read]

019-11-44-09122

7. The two extant subgroups of this classification are Ornithorhynchidae and Tachyglossidae. This group's name comes from the fact that its members use a single body part for reproduction and excretion. It is not yet known whether marsupials are more closely related to placental mammals or to these animals, which are native to Australia. For 10 points, name this taxonomic order that includes the echidna and the duck-billed platypus, also known as egg-laying mammals.

ANSWER: **monotremes** [or **Monotremata**]

142-11-44-09123

8. As a boy, this character owned a Hopalong Cassidy book in which he wrote his daily schedule and resolutions. He works as a janitor at St. Olaf College before meeting Dan Cody. Ewing Klipspringer stays at the house of this man, who calls most of his acquaintances "old sport." He is eventually killed by Wilson, whose wife was killed by Daisy Buchanan while driving this man's car. For 10 points, name this friend of Nick Carraway, the title millionaire of an F. Scott Fitzgerald novel.

ANSWER: Jay **Gatsby** [or **Jay** Gatsby; or James **Gatz**; or **James** Gatz]

052-11-44-09124

9. Rapid changes in this phenomenon's magnitude and direction are known as its namesake "shear". Like oceanic current, its geostrophic type occurs when a pressure gradient balances the Coriolis force. The overall direction of this phenomenon reverses at around 30 and 60 degrees latitude. Landforms created by this phenomenon are called Aeolian (AY-oh-lee-an). Its speed is measured on the Beaufort scale. For 10 points, name this phenomenon measured by an anemometer, the movement of air.

ANSWER: **wind**

132-11-44-09125

10. This author created the student Giovanni, who is warned by Baglioni about the title figure, whose garden in Padua he enters. In that story, the title character's touch and breath are revealed to be poisonous. Another of his works features the title Puritan discovering his entire community participating in a satanic ritual. For 10 points, name this author of such short stories as "Rappaccini's Daughter" and "Young Goodman Brown" who also created the adulteress Hester Prynne in *The Scarlet Letter*.

ANSWER: Nathaniel **Hawthorne**

052-11-44-09126

11. This organelle can contain small structures made from p80/coilin called Cajal bodies. Passage of molecules through its membrane is controlled by a pore complex. This organelle's membrane is continuous with the endoplasmic reticulum. The most prominent structure found in this organelle assembles ribosomes. This organelle is surrounded by a double membrane, called an envelope. For 10 points, name this control center of the cell which contains most of a cell's genetic material.

ANSWER: **nucleus**

066-11-44-09127

12. In one of this man's novels, the pregnant Lise is left by her husband in their estate at Bald Hills. In that novel, Prince Alexey Bolkonsky dies of wounds suffered while fighting for General Kutuzov. Another novel by this author opens with Dolly catching her husband Stiva cheating and also features a love saga between Levin and Kitty. That novel by this author ends with its title character's suicide by throwing herself under a train. For 10 points, name this author of *War and Peace* and *Anna Karenina*.

ANSWER: Leo **Tolstoy** [or Lev Nikolayevich **Tolstoy**]

141-11-44-09128

13. Organisms in this phylum comprised of many tiny organisms called zooids are known as siphonophores, one of which is the Portuguese Man o' War. This phylum contains classes such as Cubozoa and Hydrozoa, and organisms in this phylum often possess venomous cells called nematocytes. Members of this phylum generally go through medusa and polyp stages. For 10 points, identify this phylum, members of which include coral, sea anemones, and jellyfish.

ANSWER: **Cnidaria** [accept **cnidarians**]

126-11-44-09129

14. In one opera by this composer, the assassin Sparafucile kills Gilda instead of his intended target. Another of his operas features the famous drinking song "Libiamo ne' lieti calici". This composer told the story of the fallen woman Violetta in his *La Traviata* and wrote an aria about the fickle nature of woman, "La donna e mobile". Another of his operas ends with an Ethiopian princess and her lover being buried alive. For 10 points, identify this composer of *Rigoletto* and *Aida*.

ANSWER: Giuseppe Fortunino Francesco **Verdi**

126-11-44-09130

15. This technique is used to determine the amount of dissolved oxygen in water via the Winkler Method. It is used to find the isoelectric point of amino acids. In this technique, the analyte is a solution of unknown concentration, to which a solution of known concentration is added via a burette. Typically, a color-changing indicator is used to signal the end point of this technique. For 10 points, name this technique that often involves adding an acid to a base or vice versa to determine the concentration of a solution.

ANSWER: **titration**

003-11-44-09131



1. Franz Werfel's novel *The Forty Days of Musa Dagh* became symbolic to one side of this battle. The ZZW and ZOB led one side of this event, which was suppressed by Jurgen Stroop. Half of the losing side's deaths were from smoke inhalation or from being burned alive. A similar action occurred at Bialystok, with the losing side in both cases resisting being deported to the Treblinka concentration camp. The Polish resistance infrequently aided, for 10 points, what largest uprising of Jews during the Holocaust?

ANSWER: **Warsaw Ghetto** Uprising [prompt on **Warsaw** Uprising]

020-11-44-09132

2. Some fatty acids can be named by finding the position of one of these constructs in reference to the omega carbon, and the presence of only one signifies that the fatty acid is monounsaturated. This type of bond is necessarily found in imine (IH-meen), sulfoxide (sool-FAHKS-ide), and carbonyl (car-bohn-NEEL) groups. It typically consists of one sigma and one pi bond and is typically indicated by two parallel lines between two atoms. For 10 points, name this type of bond that is typically shorter and stronger than a single bond.

ANSWER: **double bond**

003-11-44-09133

3. In the first of these wars, one side equipped its ships with the corvus, a device that functioned as a grappling hook and boarding bridge. In the last of these wars, the mole of Scipio blockaded the port of one party's city, which under Hasdrubal surrendered to Scipio. In the second of these wars, the low point for the war's eventual victor was the Battle of Cannae, where that side's army was defeated by forces under Hannibal. For 10 points, name these wars fought between Rome and Carthage.

ANSWER: **Punic** Wars

121-11-44-09134

4. Albert Einstein proposed that this process's namesake coefficient is inversely proportional to the viscosity of a solvent. This process is governed by an equation setting the second spatial derivative proportional to the first time derivative; that equation is Fick's Second Law. Einstein also proposed that this process was equivalent to Brownian motion. For 10 points, name this net movement of solute from regions of high concentration to low concentration.

ANSWER: **diffusion**

003-11-44-09135

5. One man became the ruler of this city by claiming to have predicted the invasion of Charles VIII. One member of this city's ruling family was assassinated during Mass in the Pazzi Conspiracy. The Bonfire of the Vanities occurred in this city under the rule of Savonarola. The Uffizi was built in this city during the rule of Cosimo I, who continued the tradition of patronage of the arts begun by Lorenzo the Magnificent. For 10 points, name this Italian city once ruled by the Medici family.

ANSWER: **Florence** [or **Firenze**]

105-11-44-09136