

1. Earth Science/Geography/Astronomy

When combined with the word midnight, it refers to the instant when the March equinox crosses the lower meridian of a place. When combined with the word year, it refers to 365 days, 6 hours, 9 minutes, and 9.54 seconds. When combined with the word month, it refers to 27 days, 7 hours, 43 minutes, and 11.5 seconds. Give this adjective that refers to orbits measured relative to the stars.

ANSWER: Sidereal

2. Language Arts

What 11-letter word is based on the old Persian name for Sri Lanka? A person with this quality makes a lot of fortunate discoveries by accident. Name this word beginning with the letter S.

ANSWER: Serendipity (do not accept Serendip)

3. Geometry/Trigonometry (60 Seconds)

Do not worry about units. A hexagon has three right angles and three 150 degree angles. If each of the four sides that touches a 150 degree angle is of length one unit, then what is the total length of the other two sides?

ANSWER: $3 + \sqrt{3}$

4. United States History

Who represented Massachusetts in the House of Representatives from 1887 to 1893 and then served in the Senate from 1893 until his death in 1924? As a Republican, he was a strong ally of Teddy Roosevelt and critic of Woodrow Wilson. In a speech given on August 12th, 1919, he stated, "I have loved but one flag and I cannot share that devotion and give affection to the mongrel banner invented for a league."

ANSWER: (Henry Cabot) Lodge

5. World Literature

Whose first poetry collection, published in 1933, was *Luna Silvestre*? He has written many essays, most notably *The Labyrinth of Solitude*, which examines the place of Mexico within the world. Name this author of *The Grammarian Monkey* and *East Slope* who was awarded the 1990 Nobel Prize.

ANSWER: (Octavio) Paz

6. Chemistry (10 Seconds)

Thanks to information theory and Heisenberg's Uncertainty Principle, the possibility of its existence was disproven in the 20th century. What controls a trap door that opens for fast molecules from one side and slow molecules from the other? This imaginary creature was dreamed up to question the Second Law of Thermodynamics. Name this diabolical entropy-increasing entity imagined by the same person who unified theories of electromagnetism.

ANSWER: Maxwell's (or Maxwellian) Demon

7. Pop Culture

Given the quote, name the movie: "You was my brother, Charley, you shoulda looked out for me a little bit. You shoulda taken care of me just a little bit so I wouldn't have to take them dives for the short-end money."

You don't understand. I coulda had class. I coulda been a contender. I coulda been somebody, instead of a bum, which is what I am, let's face it. It was you, Charley.” This 1954 movie starred Marlon Brando.

ANSWER: On The Waterfront

8. Calculus/Combinatorics (60 Seconds)

Give your answer as a fully simplified fraction. If you randomly select the number 1 or the number 2 five times, what is the probability that the sum of your selections will be greater than, but not equal to, 8?

ANSWER: 3/16

9. Nonfiction Handout

ANSWER: ACEDB 53124

10. Technology

What four-letter abbreviation is being used for batteries that are replacing cadmium batteries? Cadmium is being replaced because it is harmful to the environment and because batteries containing it suffer from the memory effect. In addition to use as regular batteries, these are currently used in many hybrid vehicles.

ANSWER: NiMH (prompt Nickel Metal Hydride)

11. Music

This nineteenth century French composer is easy to confuse with others because the titles of his works are not very original. His best known song is probably Ave Maria, which he completed in 1859. Name this composer of the 1867 opera Romeo and Juliet, the 1860 opera Philemon and Baucis, the 1851 opera Sapho, and the 1859 opera Faust.

ANSWER: (Charles) Gounod

12. Physics (10 Seconds)

What phenomenon has a period of $L \sin \theta$ divided by the quantity $2 \pi \tau$? The period can also be given as $4 \pi^2$ times the moment of inertia divided by the quantity torque times period around the spin axis? The torque is often provided by gravity trying to knock something over. Name this term defined as the motion of a spinning body in which it wobbles so that the axis of rotation sweeps out a cone. This term is also associated with the orbit of Mercury.

ANSWER: (Gyroscopic) Precession (prompt Gyroscope)

13. United States Literature

Give the first and last names of the character who states, “I hope she'll be a fool- that's the best thing a girl can be in this world, a beautiful little fool.” She grew up in Louisville but is a resident of Long Island. Name this mother of Pammy, cousin of Nick, wife of Tom, and dream of Jay Gatsby.

ANSWER: Daisy Buchanan

14. Art/Architecture

After Bellini died in 1516, who was generally considered the greatest painter in Venice? He painted a huge altarpiece at Santa Maria Dei Frari and then worked on *Worship of Venus*, *Bacchanal*, and *Bacchus and Ariadne*. Around 1538, he painted *Venus of Urbino*.

ANSWER: Titian (accept Tiziano or Vecelli) (prompt Da Cadore or Il Divino)

15. World History

Who defeated the Megarians by dressing up his men as women? The Megarians jumped out of their ships to get them and were quickly slaughtered. This leader also wrote a Constitution that repealed most of the laws of Draco and introduced trials by jury. This Athenian lawmaker ruled Attica in 594 BC.

ANSWER: Solon

16. Biology

The answer begins with the letter P. Examples include sphingomyelin, lecithin, and cephalin. What are these compounds that usually contain two fatty acids and glycerol? They are a major part of biological membranes.

ANSWER: Phospholipid (or Phosphatide)

17. Religion/Mythology

Whose hand was bitten off by Fenrir? During Ragnarok, he will kill Garm but die from wounds inflicted by the dog. Name this precursor of Odin in German mythology who is the God of War in Norse Mythology.

ANSWER: Tyr

18. Algebra Handout

ANSWERS: ABDC

19. Current Events

Who has described his clients as monkeys, troglodytes, and idiots? These comments usually referred to Indian tribes. This man is currently being investigated for a secret contract he had with the Guam Superior Court. Additionally, in August he was indicted for wire and mail fraud in relationship to his purchase of a casino boat company, and the person he bought the company from was murdered. Name this lobbyist often associated with Tom DeLay.

ANSWER: (Jack) Abramoff

20. British Literature

Which Shakespeare play has the siblings Claudio and Isabella? It takes place in Vienna, and one of the major characters is a Duke who pretends to leave town. In his place, Vienna is run scandalously by Angelo.

ANSWER: Measure For Measure

21. Earth Science/Geography/Astronomy

Which country is surrounded by Algeria, Niger, Burkina Faso, Cote D'Ivoire, Guinea, Senegal, and Mauritania? It contains major sections of the Senegal and Niger Rivers, and its cities include Sikasso, Mopti, and Timbuktu. Name this landlocked country whose capital is Bamako.

ANSWER: Mali

22. Language Arts

The answer ends with the suffix -ORY. Which adjective, containing the Latin root for blame, is often used by lawyers to describe something that clears a person of guilt? It can appear in front of words like evidence, testimony, or statement.

ANSWER: Exculpatory

23. Geometry/Trigonometry (60 Seconds)

Give a fully simplified answer. Add the tangent of 7π over 12 to the cotangent of 7π over 12.

ANSWER: -4

24. United States History

When this ship's captain refused to have it searched, the British opened fire until the Americans had to let them on board. The British forcibly removed four people and charged them with desertion, eventually hanging one of them. Name this ship overcome on June 22, 1807 by the HMS Leopard in a prelude to the War of 1812.

ANSWER: (United States Ship) Chesapeake

25. World Literature

Which rival of Moliere and Corneille gave up writing plays in 1677 after receiving severe criticism? He did write two Biblical plays several years later. Name this French playwright who wrote *Andromaque* and *Phedre*.

ANSWER: (Jean) Racine

26. Chemistry (10 Seconds)

Give the name of the functional group that plays a major role within aldehydes and ketones. It can also be found in carboxylic acids and esters. The carbon atom in this group can have two single bonds to the rest of the molecule or one double bond. Name this group characterized by a double bond between carbon and oxygen.

ANSWER: Carbonyl (Group)

27. Pop Culture Handout

ANSWER: IGCJAEHBFD

28. Calculus/Combinatorics (60 Seconds)

Evaluate the integral from $x=0$ to $x=\pi$ of $x \cos x \, dx$

ANSWER: -2

29. Nonfiction

This title was not used by the author himself—it was first used by editors hundreds of years later to signify that the text came after scientific texts. The work is now in fourteen sections, and its three main topics are ontology, theology, and universal science. Name this title from the works of Aristotle that refers to first causes and the study of 'being qua being'.

ANSWER: Metaphysics

30. Technology

Named after a Danish king, this started as a consortium between Intel, Microsoft, IBM, Ericsson, Nokia, Toshiba, and Pluma. What is this protocol for short-range radio links between mobile computers, mobile phones, digital cameras, and other portable devices? It is often used

for wireless networking between desktops and laptops, and Version 2.0 is becoming more widespread this year.

ANSWER: Bluetooth

31. Music

An eighth note followed by three sixteenth notes. Again, an eighth note followed by three sixteenth notes. Then two eighth notes. An eighth note followed by three sixteenth notes. Then an eighth note followed by nine sixteenth notes. Which song repeats this melody over and over again, often in the background, in an ever-growing crescendo? It premiered in Paris in 1928.

ANSWER: Bolero

32. Physics (10 Seconds)

What is defined as any elementary particle that has strong nuclear force interactions with other particles? Examples include pions, delta particles, kaons, neutrons, and protons. These particles are classified as baryons or mesons.

ANSWER: Hadron(s)

33. United States Literature

Name the poem that asks the following questions: So how should I presume? And how should I begin? Do I dare disturb the universe? Shall I part my hair behind? Do I dare to eat a peach? Published in 1917, it was written by T.S. Eliot.

ANSWER: (The) Love Song of J. Alfred Prufrock

34. Art/Architecture

A museum dedicated to this artist opened this year in Bern. Name this painter of *Ad Parnassum* and *The Golden Fish* who was classified by the Nazis as degenerate. He was an early twentieth century Swiss artist.

ANSWER: (Paul) Klee

35. World History

Give the English nickname. It was about 250 square feet, and it was used the night of June 20th, 1756. Most of the people inside died, but their numbers are widely disputed. Many of the survivors were eventually rescued by troops under Robert Clive. Name this cell used for British prisoners in West Bengal, India.

ANSWER: Black Hole of Calcutta (prompt Black Hole)

36. Biology Handout

ANSWER: (Left)E(Down)D(Down)A(Right)C(Down)B

37. Religion/Mythology

This term refers to certain religions and sects that have been studied since the finding of papyrus writings at Nag Hammadi in 1945. The religion started before Christianity, but Christianity had a major influence on it. Most followers believed that Jesus did not have a body, and many may have read The Gospel of Thomas. Name this term taken from the Greek word for knowledge.

ANSWER: Gnostic(ism) (prompt Gnosis)

38. Algebra (60 Seconds)

Find the x- and y-coordinates for the vertex of a parabola that has a y-intercept of 6 and x-intercepts of 1 and 3.

ANSWER: (2,-2) (or $x=2$ and $y=-2$)

39. Current Events

Raymond Gilmartin recently retired as CEO of this company and was replaced by Richard Clark. It produces Zocor and Propecia, but this pharmaceutical giant is now facing many lawsuits because of an arthritis drug. Name this company, which originated in Germany, that is responsible for Vioxx.

ANSWER: Merck (Sharp and Dohme & Company, Inc.)

40. British Literature

This poem opens with an unexpected challenge. A strange figure shows up on New Years' Eve and challenges anyone to strike him with his own axe on the condition that the challenger will allow him to return the favor a year later. A challenger chops the figure's head off, and the figure picks up his head and rides away. Identify this fourteenth century work concerning a Knight of the Round Table.

ANSWER: Sir Gawain and the Green Knight

41. Earth Science/Geography/Astronomy

Which of the four C's is usually considered the most subjective? Thanks to x-ray tomography, it is now becoming objective, and there are attempts to improve the cutting of rough diamonds so that this quality will improve. Based on a lack of internal defects that can cloud diamonds, name this quality that is not carat, color, or cut.

ANSWER: Clarity

42. Language Arts

What word is a synonym of the non-biological definition of meiosis? It is similar to irony. An example of it is the phrase 'not a little angry', which means very angry. Give this word beginning with the letter L.

ANSWER: Litotes

43. Geometry/Trigonometry (60 Seconds)

How many x-intercepts are there between x equals zero degrees and x equals one thousand degrees for the graph $y=\cosine x$?

ANSWER: 6

44. United States History

During the years 1841 to 1844, who visited approximately eighteen state penitentiaries, three hundred county jails and correction houses, and five hundred almshouses? She wrote about what she saw, and she talked to several state legislatures about improving conditions, starting in her home state of Massachusetts. She also served as the Superintendent of Female Nurses for the Union during the Civil War. Name this crusader for new insane asylums.

ANSWER: (Dorothea) Dix

45. World Literature Handout

ANSWER: DEACFB 645123

46. Chemistry (10 Seconds)

What term, a synonym of bloom, refers to a quality found in substances such as cupric sulfate, lead acetate, and sodium thiosulfate? They all have in common a growth of powdery salt crystals on the surface of a liquid. Give this term beginning with the letter E.

ANSWER: Efflorescence (accept different word endings)

47. Pop Culture

Like Tiger Woods, he has an annual income of about eighty million dollars. He won his first major annual championships in 1994 and 1995, but after switching teams he did not win again until 2000. He has been dominant since then, beating out rivals such as Jenson Button and Juan Pablo Montoya, until this year, when he lost the Championship to Fernando Alonso. Name this Ferrari-sponsored German F1 auto racer.

ANSWER: (Michael) Schumacher

48. Calculus/Combinatorics (60 Seconds)

For the sake of clarity, I am going to try to read this question twice, but you can buzz in at any time. How many arrangements of three letters are possible if order matters, no letter is repeated, the letter y is not used, and the middle letter is the only vowel? Again, how many arrangements of three letters are possible if order matters, no letter is repeated, the letter y is not used, and the middle letter is the only vowel?

ANSWER: 1900

49. Nonfiction

Whose first book was *Black Skin, White Masks*? He grew up on Martinique and was a psychiatrist in France and Algeria. His later books advocated violence to end colonial rule. Name this author of *The Wretched of the Earth*.

ANSWER: (Frantz) Fanon

50. Technology

What three-letter abbreviation is used for the 1,850 to 1,910 and the 1,930 to 1,990 Megahertz radio band? This band is used by companies that bundle voice communications, numeric and text messaging, voice-mail and other features. Companies displaying this abbreviation prominently include Metro and Sprint.

ANSWER: PCS (accept Personal Communications Service)

51. Music

Name the song with the lyrics: "Like a song of love that clings to me, How the thought of you does things to me, Never before has someone been more..." First recorded in 1951, it became popular again in 1991 when the singer's daughter used recordings of him to make a duet. Name this hit by Nat King Cole.

ANSWER: Unforgettable

52. Physics (60 Seconds)

Let g equal 9.8 Newtons per kilogram. If an object is thrown into the air from ground level with an initial upward velocity of 19.6 meters per second, how high in the air will it get before falling down?

ANSWER: 19.6 Meters (or $19 \frac{3}{5}$ or $98/5$ Meters or 1960 centimeters) (prompt if no units are given)

53. United States Literature

The title character in which short story says: "There is no good on earth; and sin is but a name. Come, devil; for to thee is this world given." At the beginning of the story, he walks away from his new wife Faith and joins an older man to walk through a forest. Name this story that appears in *Mosses from an Old Manse* by Nathaniel Hawthorne.

ANSWER: Young Goodman Brown

54. Art/Architecture Handout

ANSWER: EIO, BJK, CGN, DHL, AFM

55. World History

Who was the last Bourbon King of France? His July Ordinances led to a Revolution against him and the assumption of power by Louis-Philippe. Name this man who ruled from 1824 to 1830.

ANSWER: Charles X

56. Biology

Give the term that applies to adult anatomy. Sagittal, Coronal, lambdoid, squamous, nasomaxillary, frontosphenoid, sphenosquamosal, and occipitomastoid. What is the name for these fibrous materials that turn into fused wiggly lines as a person ages? Most are found in the skull.

ANSWER: (Head or Skull) Sutures

57. Religion/Mythology

Because her husband ate her first five children, who, after giving birth the sixth time, wrapped a stone in baby clothes and handed it to her husband? She hid her son in a cave, and he eventually forced his father to unswallow the stone and the first five children. Name this mother of Demeter, Hades, Hera, Hestia, Poseidon, and Zeus. This Titaness was married to Cronus.

ANSWER: Rhea

58. Algebra (10 Seconds)

Give the names of the two mathematicians, one French and the other German, associated with the following: the dot product squared of vectors x and y is less than or equal to the norm of x times the norm of y . This famous inequality is related to the triangle inequality.

ANSWER: (Augustin Louis) Cauchy-(Hermann Amandus) Schwartz (Inequality)

59. Current Events

After two gunmen entered his house in 1997 and killed some of his aides, this man did not leave his house for several years. He did, however, go to London last year for medical treatment. People who live with him claim that he spends the entire night studying and praying and that he takes naps during the day. Name this resident of Najaf who was born in Iran. This Grand Ayatollah is a very influential man in Iraq.

ANSWER: (Grand Ayatollah Sayyid Ali Husaini al-)Sistani

60. British Literature

Which novel centers around Lily Briscoe and the Ramsay family? The first section takes place before World War One on the Isle of Skye. The second section, called Time Passes, covers a decade in time but is only about twenty pages long. Name this stream of consciousness novel written by Virginia Woolf.

ANSWER: *To The Lighthouse*

CHAMPIONSHIP TIEBREAKERS

FIRST TIEBREAKER

Many of this painter's earlier works, such as *Landscape Near Antwerp*, were created outdoors. He painted works such as *The Clarinet*, *Harbor In Normandy*, and *Violin and Candlestick* indoors after leaving the Fauve movement in 1907. Name this painter who often worked closely with Pablo Picasso, with whom he founded Cubism.

ANSWER: (Georges) Braque

Which major river empties into the Beaufort Sea? Flowing to the Northwest, it is named after the explorer who tried to follow it to the Pacific Ocean. It originates in Great Slave Lake and is the longest river in Canada

ANSWER: MacKenzie (River)

Typically, the bottom of it is cooled by dry ice, and a pad soaked with alcohol is attached to the top. This causes the air to become supersaturated. Particles traveling through the air leave a trail of ions, which serve as condensation centers for the alcohol. What is this device often used in particle physics experiments?

ANSWER: (Diffusion) Cloud Chamber (accept Wilson Chamber)

(60 Seconds) Ignore units. What is the area of the shaded region for the graph the absolute value of x plus the absolute value of y is less than or equal to one?

ANSWER: 2 (Square Units)

Though there are several different versions, this work begins something like: "In a summer season when soft was the sun, I clothed myself in a cloak as I shepherd were, Habit like a hermit's unholy in works, And went wide in the world wonders to hear." There are fifty different texts, with three or four of them given more credence than the others. It contains the characters Do-Wel, Do-Bet, and Do-Best. Name this work in Middle English usually attributed to William Langland.

ANSWER: (William's Vision of) *Piers Plowman*

Which President's father served in Ulysses Grant's Cabinet? Eight years before becoming President, he became the first civil governor of the Philippines. He was not reelected President when some members of his party formed a third party. Name the only man to serve as President and Chief Justice. He served after Teddy Roosevelt and before Woodrow Wilson.

ANSWER: (William Howard) Taft

SECOND TIEBREAKER

This story is about a young lady who willingly agrees to marry a very ugly man. After their marriage, he tells her that he is going to leave for six weeks and gives her keys to his huge estate. One of the keys is to a closet which the lady is not supposed to open. You can guess what comes next. This story appeared in

Mother Goose Tales and the Brothers Grimm Fairy Tales as well as operas by Dukas, Offenbach, and Bartok. It is also strongly alluded to in a 1988 Kurt Vonnegut novel.

ANSWER: Bluebeard

After the initial step, you are supposed to add iodine, ethanol, safranin, and water. It is named after the Danish scientist that invented it in 1884. Name this technique used to test for meningitis and septic arthritis. It differentiates between two types of bacteria.

ANSWER: Gram Stain(ing)

Which Russian field marshal was loved by Catherine The Great? He played a major role in annexing Crimea into Russia and soon thereafter became a Prince. In 1787, he led Catherine's tour of Crimea, and he was accused of building several fake villages to impress her. Ever since then, his name has been associated with things that look impressive but lack value.

ANSWER: (Grigori Alexandrovich) Potemkin

Which popular historian has written books about The Brooklyn Bridge, The Johnstown Flood, The Panama Canal, and Harry Truman? He has recently focused his attention on America's Founding Fathers with his works *The Course Of Human Events* and *1776*.

ANSWER: (David) McCullough

What technology first entered the market in 2000 with the IBM Power4? AMD and Intel have entered the market this year. These can lower power usage as compared to simpler computer designs, which to some extent allows computers to operate faster without overheating. Like simple designs, however, these computers have only one bus and one memory controller. Name this example of parallel computing.

ANSWER: Dual Core (Central Processing Unit) (accept Multicore; prompt Parallel Computing)

Before she became famous, who portrayed a lesbian in a play with Barbara Streisand? She was a star in the early 1980s, becoming a popular stand-up comedienne and permanent guest host on The Tonight Show. She was given her own talk show, but her career plummeted and her husband committed suicide in the late 1980s. She now can be seen on E! Television with her daughter Melissa talking about celebrities and showing off her most recent plastic surgery.

ANSWER: (Joan) Rivers