Question of the Day

Book 8

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SOLUTIONS

PREFACE

For the past couple of years, CAT and other MBA entrance exams have shown a trend towards questions testing a student's ability to apply Mathematical Principles and Analytical Reasoning to solve problems. The unpredictable nature of CAT has ensured that most students are never fully prepared to ace the exam. This is because students limit their preparation to just the learning and practice of core concepts of Mathematics, Verbal Ability and Data Interpretation & Logical Reasoning.

This book is a compilation of the questions with a difficulty level typically on par with CAT. Every single question is original and unique, created by our dedicated team of subject matter experts. The questions are designed to give our readers greater exposure to the types of questions that appear in CAT. The detailed solutions in this book may also provide alternate strategies and shortcuts to solve problems. This book will give students that extra edge and confidence needed to be ready for any surprise that CAT might throw their way.

This book is the 8th in a series of books on the 'Question of the Day' featured on the TestFunda site. We are sure that our readers will benefit greatly from these books.

Question of the Day #01: (10-Sep-09)

A certain number k has 8 factors. Which among the following cannot be the possible number of factors of k^3?

OPTIONS

1) 22
2) 27
3) 40
4) 64
5) None of these

Question of the Day #02: (11-Sep-09)

The question below consists of two capitalized words that have a certain relationship to each other, followed by a certain pair of words. Choose the pair that is RELATED to each other in the same way as the capitalized pair.

OPTIONS

1) Evolution : Transformation
2) Inducible : Deducible
3) Analogous : Differentiated
4) Affect : Affectation
5) Transcendental : Metaphysical

Question of the Day #03: (12-Sep-09)

If the average of 30 positive and distinct integers is 12410, what is the maximum possible value any one of the 30 integers can take given that 12381 is the least of the 30 integers?

OPTIONS

1) 12975
2) 12445
3) 12845
4) 12753
5) None of these

Question of the Day #04: (13-Sep-09)

This question consists of two capitalized words that have a certain relationship to each other, followed by a certain pair of words. Choose the pair that is RELATED to each other in the same way as the capitalized pair.
PREVARICATE: EQUIVOCATE

OPTIONS

1) Reschedule : Resume
2) Reorganize : Regulate
3) Procastinate : Protract
4) Obviate : Elucidate
5) Advocate : Abandon

Question of the Day #05: (14-Sep-09)

The number of rectangles with integral sides, whose area is $5n$ and $7n$ square units are 9 and 12, respectively. How many rectangles can be formed with integral sides whose area is $35n$ square units if n is a natural number and $35n$ is a perfect square but $5n$ and $7n$ are not perfect squares?

OPTIONS

1) 15
2) 14
3) 21
4) 216
5) None of these

Question of the Day #06 (15-Sep-09)

The question below contains a paragraph followed by alternative summaries. Choose the option that best captures the essence of the text.

Among Yeats's dominant images are Leda and the Swan; Helen and the burning of Troy; the Tower in its many forms; the sun and moon; the burning house; cave, thorn tree, and well; eagle, heron, sea gull, and hawk; blind man, lame man, and beggar; unicorn and phoenix; and horse, hound, and boar. Yet these traditional images are continually validated by their alignment with Yeats's own personal experience, and it is this that gives them their peculiarly vital quality. In Yeats's verse they are often shaped into a strong and proud rhetoric and into the many poetic tones of which he was the master. All are informed by the two qualities which Yeats valued and which he retained into old age-passion and joy.

OPTIONS

1) The symbolism of Yeats's poetry arose from his personal experiences; his passion and joy gave his poetry its peculiar vitality.
2) In Yeats's poetry, traditional symbols achieved peculiar vitality in alignment with his own experience; his many poetic tones expressed his joy and passion.
3) Yeats gave traditional images a peculiar vital quality; the many poetic tones that he was the master of demonstrated passion and joy – the two qualities he retained into old age.
4) The symbolism of Yeats's poetry was based on traditional images with a peculiar vital quality; his readers did not miss the passion and the joy that he valued and retained into old his age.
5) Yeats infused traditional symbols with vitality by aligning them with his own experiences; his strong and proud rhetoric revealed his own passion and joy.

Question of the Day #07: (16-Sep-09)

Which of the following numbers gives the largest remainder when divided by 101?

OPTIONS

1) 123456789123
2) 231456789231
3) 312456789312
4) 213456789213
5) All of the above give the same remainder.

Question of the Day #08: (17-Sep-09)

The question below consists of a paragraph in which the first and last sentences are identified. Choose the option that has the most logical order of the intermediate sentences.

A. As the G20 summit showed, we typically regulate in the midst of a bust.

B. Ironically, faith in draconian regulation is strongest at the bottom of the cycle, when there is little need for participants to be regulated.
C. By contrast, the misconception that markets will take care of themselves is most widespread at the top of the cycle, at the point of most danger to the system.
D. But we reform under the delusion that the regulated, and the markets they operate in, are static and passive, and that the regulatory environment will not vary with the cycle.
E. We need to acknowledge these differences and enact cycle-proof regulation.
F. That is when righteous politicians feel the need to do something, bankers' frail balance-sheets and vivid memories make them eschew risk, and regulators have their backbones stiffened by public disapproval of past laxity.
G. If we don't, there are many dangers.

OPTIONS

1) BCEDF
2) DBCEF
3) BCDEF
4) FDBCE
5) FECDB

Question of the Day #09: (18-Sep-09)

Let x be a positive integer less than 100, such that x^2 gives the same remainder as 100 does on division by 19. How many such values can x take?

OPTIONS

1) 7
2) 8
3) 9
4) 10
5) Cannot be determined

Question of the Day #10: (19-Sep-09)

The following question has a paragraph from which the last sentence has been deleted. From the given options, choose the one that completes the paragraph in the most appropriate way.

Central to Kallat's work is the relationship between text, images, traditional and contemporary symbols. The urban milieu of Mumbai remains his primary muse; it's nurturing of high glamour, human suffering, simmering aggression and swarming masses an ongoing preoccupation. One of his most ambitious installations till date- Aquasaurus, a seven-metre long water-tanker, fashioned from bones, that morphs to become a macabre prehistoric creature for instance, personifies the radical transformation of Indian city life. _____.

OPTIONS

1) "I am liberalisation's child; my worldviews are different from artists born twenty years before me," explains Kallat.
2) "If you're a remotely interesting artist, easy classification should be difficult," Kallat says.
3) "There was a certain shifting in some of the known territories of painting," Kallat says.
4) "Rules were being dismantled and I knew I could make a value addition as a young artist," Kallat says.
5) "Your work is largely what you breathe in," explains Kallat.

Question of the Day #11: (20-Sep-09)

A rectangular floor with integer sides (not necessarily distinct) has to be covered with square tiles of unit side length. The tiles at the edges are purple and tiles in the interior are blue in colour. If the number of blue tiles used, is equal to the number of purple tiles used, which of the following cannot be the side length of the rectangular floor?

OPTIONS

1) 12 units
2) 8 units
3) 6 units
4) 5 units
5) 16 units

Question of the Day #12: (21-Sep-09)

The question below contains a paragraph followed by alternative summaries. Choose the option that best captures the essence of the text.

The Quantity theory of money is the foundation stone of Monetarism. The theory says that the quantity of money available in an economy determines the value of money. Increases in the money supply are the main cause of inflation. The theory is built on the Fisher equation, MV = PT, named after Irving Fisher (1867–1947). M is the stock of money, V is the Velocity of circulation, P is the average price level and T is the number of transactions in the economy. The quantity theory, in its purest form, assumes that V and T are both constant, at least in the short-run. Thus any change in M leads directly to a change in P. In other words, increase the money supply and you simply cause inflation.

OPTIONS

1) Monetarism is based on the Fisher equation which assumes that the stock of money is equal to the price level. Hence, an increase in money supply causes inflation.
2) The Fisher equation assumes that the stock of money directly affects the average price level; hence any increase in money supply causes inflation.
3) The quantity theory assumes that circulation of money is equal to the number of transactions; hence if money supply is increased inflation must result.
4) The quantity theory is based on the Fisher equation which assumes that the stock of money is equal to the price level; hence, increase in money supply causes inflation.
5) The Fisher equation which assumes that the stock of money is equal to the price level; hence, increase in money supply causes inflation.

Question of the Day #13: (22-Sep-09)

$$A = \left(1+\frac{1}{3}\right)\left(1+\frac{1}{9}\right)\left(1+\frac{1}{81}\right)\ldots\left(1+\frac{1}{3^{32}}\right)$$

$B = 3^{64} - 1$.

What is the value of $\frac{A}{B}$?

OPTIONS

1) $(3^{64})^{-1}$
2) $(2 \times 3^{63})^{-1}$
3) $(3^{63})^{-1}$
4) $(3^{63} + 3^{64})^{-1}$
5) $(2 \times 3^{63} + 2 \times 3^{64})^{-1}$

Question of the Day #14: (23-Sep-09)

The question below contains a paragraph followed by alternative summaries. Choose the option that best captures the essence of the paragraph.

Accounting provides information for several purposes through the maintenance of data, the analysis and interpretation of these data, and the preparation of various kinds of reports. Most accounting information is historical- that is, the accountant observes all activities that the organization undertakes, records their effects, and prepares reports summarizing what has been recorded; the rest consists of forecasts and plans for current and future periods. Accounting information can be developed for any kind of organization, not just for privately owned, profit-seeking businesses. One branch of accounting deals with the economic operations of entire countries.

OPTIONS

1) Accounting is the systematic development and analysis of information about the economic affairs of an organization for the purpose of forecasts and planning.
2) Accounting is the systematic development and analysis of information about the economic affairs of an organization and even nations for several purposes.
3) Accounting provides systematic analysis of information about the economic affairs of an organization for the purpose of forecasts and planning.
4) Accounting is the systematic development and analysis of information about the economic affairs of organizations including countries.
5) Accounting provides organizations and countries with information about the economic affairs for the purpose of forecasts and planning.

Question of the Day #15: (24-Sep-09)

If X and Y are natural numbers with no common prime factor and Z is the greatest common divisor of $(X + Y)$ and $(X^2 + Y^2)$ then how many values can Z take?

OPTIONS

1) 0
2) 1
3) 2
4) 3
5) Cannot be determined

Question of the Day #16: (25-Sep-09)

The decades-old "hygiene hypothesis" holds that early exposure to microbes somehow challenges the immune system and strengthens it against allergies. Studies have shown children exposed to disease-causing microorganisms by older siblings or attending nursery cut their future allergy risk.

Which of the following, if true, would most seriously challenge the conclusion of the studies?

OPTIONS

1) Children in day care usually get more colds and other infections.
2) Children who grow up on farms are less likely to develop allergies like hay fever and asthma.
3) Children with frequent chest infections and wheezing had older siblings and had attended nursery in early life.
4) Children who went to nursery and who had older siblings had greatly reduced the risk of frequent chest infections and wheezing in early life.
5) In susceptible children, something in their environment triggers infections and allergies.

Question of the Day #17: (26-Sep-09)

If $A = \frac{x}{1-x^2} + \frac{x^2}{1-x^4} + \cdots + \frac{x^{32}}{1-x^{64}}$

then which of the following is equal to the value of A?

OPTIONS

1) $\frac{1}{1-x} + \frac{1}{1-x^{32}} - \frac{1}{1-x^{64}}$
2) $\frac{1}{1-x} - \frac{1}{1-x^{64}}$
3) $\frac{1}{1-x^2} - \frac{1}{1-x^{32}} + \frac{1}{1-x^{64}}$
4) $\frac{1}{1-x^2} - \frac{1}{1-x^{64}}$
5) $\frac{1}{1-x^2} - \frac{1}{1-x^{32}}$

Question of the Day #18: (27-Sep-09)

Ahead of the forthcoming Copenhagen climate talks, the UK government asked the Climate Change Committee to advise on what should be done about emissions from aviation in the UK. The committee estimated that the aviation industry will have to cut emissions from planes back to their 2005 level by 2050. That is much more permissive than the overall UK target of cutting emissions 80% on 1990 levels by 2050.

Based on the information given in the paragraph above, which of the following options is most likely to be true?

OPTIONS

1) It might be easier for the aviation industry to make the leap to zero carbon emissions rather than trying to reduce it by 80%.
2) The overall UK target is to cut emissions by 2050 to less than 80% of the 1990 levels.
3) Some sectors may have to cut emissions by 90% by 2050 so the aviation sector can continue to grow.
4) The aviation sector in the UK contributes 80% of the overall emissions.
5) An 80% reduction in overall emissions will impact the performance of the Aviation industry in the UK.

Question of the Day #19: (28-Sep-09)

Amar has 4 cubes each with a distinct number from 1 to 4 on it.The cubes are arranged in a single line in any order. He wants them placed in ascending order from his left to his right. To do this, he takes the leftmost cube and places it rightmost. He then takes the third cube from the right and places it rightmost.

What was the initial order in which the cubes were kept?

OPTIONS

1) 4-3-1-2
2) 4-1-3-2
3) 2-4-3-1
4) 3-1-4-2
5) None of these

Question of the Day #20: (29-Sep-09)

The question below contains a number of sentences. Each sentence has pairs of word(s)/phrases that are highlighted. From the highlighted word(s)/phrase(s), select the most appropriate word(s)/phrase(s) to form correct sentences. Then, from the options given, choose the best one.

1. How can you **proscribe (A) / prescribe for (B)** others, when you are unable to heal yourself?
2. His silence is **tantamount to (A) / paramount with (B)** an admission of guilt
3. The critics have **degraded their (A) / denigrated our (B)** efforts.
4. Our professor is very **amiable and (A) / amenable and (B)** does not get easily annoyed.

OPTIONS

1) ABBA
2) BABA
3) ABAA
4) BAAB
5) BBAA

Question of the Day #21: (30-Sep-09)

Quadratic functions $f(x) = -x^2 + ax + b$ and $g(x) = x^2 + cx + d$ are defined for real values of x such that $f(x) < 0$ for all values of x, except $x = 2$ and $g(x) > 0$ for all values of x except $2 \le x \le 3$. If $h(x) = \max [f(x), g(x)]$ then for what value of x is the value of the function $h(x)$ minimum?

OPTIONS

1) 2
2) 0
3) $-\frac{1}{4}$
4) $\frac{5}{2}$
5) None of these

Question of the Day #22: (01-Oct-09)

From the following words, identify the word that will make a relationship for the third word that is the most similar to the relationship between the first pair.

Poltergeist: Apparition:: Balderdash:

OPTIONS

1) Moonshine
2) Alacrity
3) Sunshine
4) Avidity
5) Riposte

Question of the Day #23: (02-Oct-09)

Functions $f(x)$ and $g(y)$ are defined for natural numbers x and y as follows.

$$f(x) = x - 5\left[\frac{x}{5}\right]$$

$$g(y) = y - 3\left[\frac{y}{3}\right]$$

If z is any real number, $[z]$ denotes the largest integer less than or equal to z.

Which of the following can never be the value of the product $f(x) \times g(y)$?

OPTIONS

1) 0
2) 1
3) 6
4) 8
5) 12

Question of the Day #24: (03-Oct-09)

Each of the questions below contains a number of sentences. Each sentence has pairs of word(s)/phrases that are highlighted. From the highlighted word(s)/phrase(s), select the most appropriate word(s)/phrase(s) to form correct sentences. Then, from the options given, choose the best one.

i. I have a **turgid (A) / turbid (B)** limb.
ii. The award winning actor's performance on the screen was **exceptional (A) / exceptionable (B).**
iii. The animal looked like a young deer and was **fawn (A) / faun (B)** in colour.
iv. For years, 'experts' have told cat owners that domestic cats are **insocial (A) / unsociable (B)** creatures that dislike the company of other cats.
v. The media has reported several times about the **venial (A) / venal (B)** arrangement that the city's mafia has with the police.

OPTIONS

1) AABBB
2) BAABB
3) ABAAB
4) AAABB
5) BABAB

Question of the Day #25: (04-Oct-09)

If $a^2 + b^2 + c^2 = p^2 + q^2 + r^2 = 101$, where a, b, c, p, q and r are all distinct real numbers, then which of the following inequalities is true?

OPTIONS

1) $ap + bq + cr < 99$
2) $ap + bq + cr < 101$
3) $ap + bq + cr < 202$
4) $ap + bq + cr < 200$
5) None of these

Question of the Day #26: (05-Oct-09)

Generally, income and education are positively linked to better lives. However, taller people live better lives, according to US researchers. More than 454,000 adults aged 18 and over were asked by phone for their height and their evaluation of their lives. Overall, taller individuals judged their lives more favourably and were more likely to report positive emotions such as enjoyment and happiness. Hence, there does appear to be a correlation between height and happiness.

Which of the following weakens the above argument the most?

OPTIONS

1) Taller people also had higher incomes and education.
2) The people who are the happiest are not the very tallest.
3) There is a direct correlation between income and happiness.
4) There is a threshold of height tolerance; beyond that life becomes very difficult.
5) Taller men are more prone to experience irritation and anger.

Question of the Day #27: (06-Oct-09)

$$A = 3^{4x^2 - 10x + 3}$$

$$B = 2\left(15^{2x^2 - 5x + 1}\right)$$

$$C = 5^{4x^2 - 10x + 2}$$

What is the range of x if $A - B \geq C$?

OPTIONS

1) $\left[\frac{5-\sqrt{19}}{4}, \frac{5+\sqrt{19}}{4}\right]$
2) $\left[\frac{5-\sqrt{17}}{4}, \frac{5+\sqrt{17}}{4}\right]$
3) $\left[\frac{5-\sqrt{15}}{4}, \frac{5+\sqrt{15}}{4}\right]$
4) $\left[\frac{5-\sqrt{21}}{4}, \frac{5+\sqrt{21}}{4}\right]$
5) None of these

Question of the Day #28: (07-Oct-09)

The law of supply and demand tells you that increasing the quantity of something tends to reduce its price. But not, it seems, in management education. Every year with scores of new B-schools coming up, people wonder if this will be the year that management education starts to lose its value—and every year; there is no sign of it happening.

Which of the following helps resolve the apparent paradox in relation to management education and its demand?

OPTIONS

1) There are over 750 B-Schools in India and their fees are on the increase every year.
2) Some of the premier B-schools fetches phenomenal salaries to students even though they do not deserve that much.
3) Corporates reward management students well for the time and money they invest in education.
4) The government has slashed the funding of most b-schools and this has caused the fees to increase.
5) With many graduates to choose from, employers increasingly reject anyone who does not sport a degree, no matter what the job's requirements.

Question of the Day #29: (08-Oct-09)

If $P = \log_{(2x+7)} x^2$,

$Q = \log_{(2x+7)} 3$,

$R = \log_{(2x+7)}(x+6)$

and $P < Q + R$, which of the following gives the range of values that x can take?

OPTIONS

1) $\left(-\frac{7}{2}, -3\right) \cup (-3, 6)$
2) $\left(-\frac{7}{2}, -3\right) \cup (-3, \infty)$
3) (–3.5, –3) ∪ (3, 3.5)
4) (–3.5, –3) ∪ (3, 6)
5) None of these

Question of the Day #30: (09-Oct-09)

Female MBAs tend to earn less than their male colleagues. Female MBA graduates not only earn significantly less than their male colleagues, but the gap grows over time, according to a paper from the National Bureau of Economic Research. The authors tracked the average earnings of 1,600 MBAs who graduated from the University of Chicago's Graduate School of Business between 1990 and 2009.
Which of the following best supports the argument above?

OPTIONS

1) 13% of the women MBAs in the study were not working at all, ten years after graduating, while the corresponding figure for men was a mere 1%.
2) The difference between the average salary of male and female MBAs is skewed by a small number of extremely high earners among women.
3) The difference between the average salary of male and female MBAs is skewed by a large number of extremely low earners among men.
4) Business school admissions are less competitive for women than it is for men.
5) Of the 1600 MBAs only 75% constituted men.

Question of the Day #31: (10-Oct-09)

$$f_0(x) = \frac{1}{1-x} \text{ and}$$

$$f_n(x) = f_0(f_{n-1}(x)) \; \forall \; x \in \mathrm{N}$$

Find the value of $f_{2009}(2009)$.

OPTIONS

1) $\frac{2008}{2009}$
2) 2009
3) 2008
4) 1004
5) $-\frac{2008}{2009}$

Question of the Day #32: (11-Oct-09)

Studies indicate the need to screen cancer patients carefully for signs of psychological distress. The study found death rates were up to 25% higher in patients showing symptoms of depression. In patients actually diagnosed with major or minor depression, death rates were up to 39% higher.
The authenticity of the above study depends on which of the following (assumptions)?

OPTIONS

1) Diagnosis of a depressive disorder can predict mortality in cancer patients.
2) Other clinical characteristics that might affect survival were taken into consideration.
3) Depression is more life threatening than cancer itself.
4) Depression impacted the progression of cancer.
5) More research will be needed to explain whether these observations are true and if so why.

Question of the Day #33: (12-Oct-09)

A is a number of the form P^N, where P is a prime number and N is a natural number. X is the product of all the positive integral factors of A. Which of the following could be a value of

$$\frac{\log X}{\log P}?$$

OPTIONS

1) 14
2) 28
3) 112
4) 56
5) None of these

Question of the Day #34: (13-Oct-09)

Critics argue that surveillance and data aggregation technologies -'dataveillance', as some researchers have defined it- do not deter criminals or help solve crimes and puts privacy at stake. A report into London's surveillance network found that in 2008 more than a million cameras helped to solve just 1000 crimes. That is one crime for every thousand cameras. Civil Liberties Union said innocent people should not be watched. "If you are a law-abiding citizen and no one has any reason to believe that you are doing anything wrong, law enforcement should not be watching you".
Which of the following most seriously undermines the argument above?

OPTIONS

1) The law enforcement agencies are just doing their job.
2) Criminals are caught a lot faster with the help of the surveillance cameras.
3) Surveillance and cases would take more personnel in the absence of surveillance cameras.
4) Police officers and surveillance cameras are placed in localities prone to crime.
5) Surveillance cameras monitor areas that are not patrolled because officers may be on other assignments.

Question of the Day #35: (14-Oct-09)

$X = (10000 \times 10001 \times 10002 \times 10003) + 1$ and $X = Y^2$, where Y is a natural number.

What is the value of Y?

OPTIONS

1) 100000001
2) 102030201
3) 102000201
4) 103000301
5) None of these

Question of the Day #36: (15-Oct-09)

Can a husband open his wife's letters? It has recently been decided in a Paris tribunal that the husband has the right to open the letters addressed to his wife. The Paris decision must be based upon the familiar formula that man and wife are one, and that that one is the husband. If a man has the right to read all the letters written to his wife, being his property by reason of his ownership of her, why may he not have a legal right to know all that is said to her? The question is not whether a wife ought to receive letters that her husband may not read, or listen to talk that he may not hear, but whether he has a sort of lordship that gives him privileges which she does not enjoy.
What can you conclude from the above passage?

OPTIONS

1) The wife has no interest in her husband's personal life.
2) The husband can keep tabs on his wife's personal correspondence.
3) The wife does not have the right to have a private life.
4) Marriage is a male dominated relationship.
5) Letters are legal documents that must be opened only by the person it is addressed to.

Question of the Day #37: (16-Oct-09)

We have $D = x^3 + y^3 - (x - y)(x^2 + 4y^2)$ for real, positive and unequal values of x and y. Which of these is true?

OPTIONS

1) $D > 0$
2) $D = 0$ for three values of (x, y)
3) $D < 0$
4) $D = 0$ for two values of (x, y)
5) D may be greater than or less than 0 depending on the values of x and y

Question of the Day #38: (17-Oct-09)

Each of the questions below contains a number of sentences. Each sentence has pairs of word(s)/phrases that are highlighted. From the highlighted word(s)/phrase(s), select the most appropriate word(s)/phrase(s) to form correct sentences. Then, from the options given, choose the best one.

1. In the absence of a queue, we could not find out **who's (A) / whose (B)** turn came next.
2. At the funeral, several **wreathes (A) / wreaths (B)** were placed on the grave of the deceased.
3. During his speech he made the **ironic (A) / sardonic (B)** observation that the politicians could always be trusted.
4. The judges were **uninterested (A) / disinterested (B)** in the outcome of the case.
5. The administrative division of India is **composed (A) / comprises (B)** of 28 states and 7 union territories.

OPTIONS

1) ABABB
2) BBBAA
3) BBABA
4) BABAB
5) ABBAB

Question of the Day #39: (18-Oct-09)

If $X = 2686^3 - 686^3 - 1500^3 - 500^3$

then which of the following is not a factor of X?

OPTIONS

1) 3
2) 2000
3) 1186
4) 2186
5) None of these

Question of the Day #40: (19-Oct-09)

Each of the questions below contains a number of sentences. Each sentence has pairs of word(s)/phrases that are highlighted. From the highlighted word(s)/phrase(s), select the most appropriate word(s)/phrase(s) to form correct sentences. Then, from the options given, choose the best one.

1. The **prerequisites (A) / perquisites (B)** of this job include health insurance and a performance bonus.
2. I am always ready to take the risk of being tedious in order to be sure that I am **perspicuous (A) / perspicacious (B).**
3. My **principle (A) / principal (B)** sells steel forged items.
4. Marijuana is **prescribed (A) / proscribed (B)** in the U.S because it is a deadly narcotic.
5. It was **regretful (A) / regrettable (B)** that the teacher made the class retake the test when he was wrong about the answers.

OPTIONS

1) BABAA
2) ABBBA
3) BBBBA
4) BABBB
5) AAABB

Question of the Day #41: (20-Oct-09)

X, *Y* and *Z* are three distinct natural numbers in Harmonic Progression. Which of the the following values is a possible value of $(X + Z)/Y$?

OPTIONS

1) 0
2) 0.5
3) 1
4) 2
5) None of these

Question of the Day #42: (21-Oct-09)

The laws of Rome were very strict in regard to associations, which, formed on the pretense of amusement, charity, or athletic sports, were apt to degenerate into political sects. Exception was made in favor of the *collegia funeraticia*, which were societies formed to provide a decent funeral and place of burial for their members. An inscription discovered at Civita Lavinia quotes the very words of a decree of the Senate on this subject: "It is permitted to those who desire to make a monthly contribution for funeral expenses to form an association." "These clubs or colleges collected their subscriptions in a treasure-chest, and out of it provided for the obsequies of deceased members. Funeral ceremonies did not cease when the body or the ashes was laid in the sepulchre. It was the custom to celebrate on the occasion a feast, and to repeat that feast year by year on the birthday of the dead, and on other stated days. For the holding of these feasts, as well as for other meetings, special buildings were erected, named *scholae* and when the societies received gifts from rich members or patrons, the benefaction frequently took the shape of a new lodge-room, or of a ground for a new cemetery, with a building for meetings." The Christians took advantage of the freedom accorded to funeral colleges, and associated themselves for the same purpose, following as closely as possible their rules concerning contributions, the erection of lodges, the meetings, and the love feasts; and it was largely through the adoption of these well-understood and respected customs that they were enabled to hold their meetings and keep together as a corporate body through the stormy times of the second and third centuries.

Based on the above passage, which of the following is most likely to be true?

OPTIONS

1) For the populace of Rome, getting involved in amusement, charity or athletic activities was dangerous.
2) Funeral colleges were responsible for funeral ceremonies - the family was not.
3) The *raison d'etre* for funeral colleges was the lack of places where people could meet and interact.
4) The emulation of funeral colleges by Christians allowed them to survive beyond the second and third centuries.
5) Funeral colleges evolved from being socio-political associations to socio-religious bodies.

Question of the Day #43: (22-oct-09)

Ari, the king of Egypina, is very vain
Wishes all his soldiers be called by his own name!

Dexter, his minister, finds this ludicrous,
And to the relief of the soldiers,
Manages a fine bargain.

"*Your highness, all soldiers will have an 'A' in their names*", *says he,*
"*The initial letter of your name that 'A' happens to be.*"

"*Amen, but no name will have more letters than mine has*" *the king bellows*!
"*Else, find yourself, Dexter, right at the gallows*!"

If all soldiers in Ari's army have unique names, how many soldiers can the army have at the most?

OPTIONS

1) 2003
2) 2002
3) 1951
4) 703
5) None of these

Question of the Day #44: (23-Oct-09)

A. *'The boy who cried wolf'* is an especially **apposite (A)/ opposite (B)** story, which we can use to explain the importance of being truthful.
B. His **receding (A)/ reducing (B)** hairline made him uncomfortable.
C. **Rigour (A)/ Rigor (B)** mortis had set it almost five hours ago.
D. Even after all the tests we were unable to determine what **ailed (A)/ weakened (B)** the old priest.
E. The poor clerk was inundated with words like **'lien (A)/ lean (B)** on goods', 'mortgage' and 'inter-alia' on his first day in court.

OPTIONS

1) AAAAA
2) AAABA
3) BAABA
4) AABAA
5) BABBA

Question of the Day #45: (24-Oct-09)

$$x_n = \frac{3n}{2} + \cfrac{1}{3n + \cfrac{1}{3n + \cfrac{1}{3n + \cdots}}}$$

and $y_n = x_n^2$

Then what is the value of $y_1 + y_2 + y_3 + y_4 + y_5 + y_6 + y_7 + y_8$?

OPTIONS

1) 459
2) 259
3) 267
4) 467
5) None of these

Question of the Day #46: (25-Oct-09)

The question below has five word pairs. Only one of the words in a word pair fits the context of the sentence correctly. Find the option which enlists all the correct words.

The **(A) adoptive/adopted (B)** parents **(A) preceded/proceeded (B)** to file their application to adopt another child. They had **(A) born/borne (B)** the taunts of their relatives for a long time before they had come to the decision to go for adoption. Even then, this **(A) alternate/alternative (B)** was seen by the society as an act of **(A) bravado/bravery (B)** rather than a natural desire to bring up an individual.

OPTIONS

1) ABBBA
2) BBBBA
3) ABABB
4) BBAAB
5) ABABA

Question of the Day #47: (26-Oct-09)

$$K = \frac{x^4 + \frac{1}{x^4} + 1}{x^2 + \frac{1}{x^2} + 1}; x < 0,$$

which of the following intervals best describes the range of K?

OPTIONS

1) $\left(\frac{1}{2}, \infty\right)$
2) $(1, \infty)$
3) $\left(\frac{1}{4}, \infty\right)$
4) $[1, \infty)$
5) $\left(\frac{3}{4}, \infty\right)$

Question of the Day #48: (27-Oct-09)

The question below has five word pairs. Only one of the words in a word pair fits the context of the sentence correctly. Find the option which enlists all the correct words for a question.

She always felt that she was **(A) inflicted/afflicted (B)** by some malady or the other. She would often **(A) elude/allude (B)** to her so-called insufferable imagined illnesses to her visitors. She was such a good storyteller that her visitors were horrified listening to her endless **(A) forebodings/forbidding (B)** about future health concerns. She also had **(A) excess/access (B)** to all kinds of medicine information that she would want to discuss with her doctor daily.

OPTIONS

1) ABAB
2) BBAB
3) BBAA
4) AAAB
5) BBBA

Question of the Day #49: (28-Oct-09)

How many divisors of the number 1! × 2! × 3! × … × 9! × 10! are perfect squares?

OPTIONS

1) 18088
2) 2160
3) 14592
4) 912
5) None of these

Question of the Day #50: (29-Oct-09)

The question below has five word pairs. Only one of the words in a word pair fits the context of the sentence correctly. Find the option which enlists all the correct words.

One good thing about his jokes was that they were not **(A) backwards/backward (B)**. They were spontaneous and witty **(A) antidotes/anecdotes (B)** superbly created from real-life incidents. Whether you were **(A) aggravated/annoyed (B)** or feeling **(A) bad/badly (B)** about something, his jokes could blow away your gloom. How he could so easily **(A) elicit/illicit (B)** laughter from people still remains a mystery for me.

OPTIONS

1) ABBAA
2) ABABA
3) BAABA
4) BBBAA
5) BBBAB

Question of the Day #51: (30-Oct-09)

How many ordered pairs (x, y), such that x and y are positive integers, satisfy the equation $x^2 - 18x - 1 = 2^y - 3^4$?

OPTIONS

1) 0
2) 1
3) 2
4) 3
5) More than 3

Question of the Day #52: (31-Oct-09)

Identify the incorrect sentence or sentences.

A. All the facts thus predicted by the theory is confirmed by experiment.
B. There is no known process which permit the direct measurement of the mass of an electron.
C. In the case of the cathode rays emitted by radium, these measurements are particularly interesting, for the reason that the rays which compose a pencil of cathode rays are animated by very different speeds.
D. Professor Kaufmann has effected some very careful experiments by the method of crossed spectra.
E. He has thus been enabled by working *in vacuo* to register the very different velocities which, starting in the case of certain rays from about seven-tenths of the velocity of light, attain in other cases in ninety-five hundredths of it.

OPTIONS

1) A, B, D and E
2) A, B and E
3) Only C
4) A, B and C
5) D and E

Question of the Day #53: (01-Nov-09)

A circle with radius *r* and centre O is drawn such that a circle with center O' and radius *r*' (< *r*) is tangent to it at a point P. There is a point A on the larger circle (distinct from P) such that chords AX and AY are tangent to the smaller circle at B and C respectively. If ∠BPC = 72°, what is the measure of ∠XPY?

OPTIONS

1) 108°
2) 72°
3) 112°
4) 144°
5) 120°

Question of the Day #54: (02-Nov-09)

Identify the correct sentence/ sentences

A. I was very sleepy and frightened on that damp chilly morning.
B. I wasn't quite sure I liked the idea.
C. But the sharp morning air, interest in training a new motor-cycle in the way it should go, the unexpected popping-up and grotesque salutes of Boy Scouts soon made me forget the war.
D. The little breakdowns delayed us considerably.
E. My friends rode joyfully from one end of the platform to the other, much to the agitation of the guard.

OPTIONS

1) A, B and E
2) B, C, D and E
3) A, B, D and E
4) A, B and C
5) Only C

Question of the Day #55: (03-Nov-09)

$$\left|3-\frac{|6x|}{4+|2x|}\right| \geq \frac{1}{4}$$

What is the total number of integral values of *x* that satisfies the given inequality?

OPTIONS

1) 40
2) 52
3) 54
4) 45
5) 51

Question of the Day #56: (04-Nov-09)

This book **comprises (A) / consists (B)** of five chapters. I was **confidant (A) / confident (B)** that I would be able to complete them in five days. **Despite (A) / In spite (B)** of my will I could manage only three. This was because of the **dinning (A) / dining (B)** noise that the machines used for construction were making. **Presently (A) / Currently (B)** I am on my fourth chapter.

OPTIONS

1) ABBAB
2) BBBAB
3) ABAAB
4) BBAAA
5) ABBAA

Question of the Day #57: (05-Nov-09)

P is a point in the ΔABC such that ∠PAC = ∠PCB = ∠PBA = θ.

If AB = 12 cm, BC = 10 cm and AC = 14 cm, then tan θ =

OPTIONS

1) $\frac{13\sqrt{3}}{61}$
2) $\frac{12\sqrt{6}}{51}$
3) $\frac{10\sqrt{5}}{63}$
4) $\frac{12\sqrt{6}}{55}$
5) Cannot be determined

Question of the Day #58: (06-Nov-09)

The question below contains a paragraph with a missing sentence or part of a sentence. Choose the option that most logically completes the paragraph.

The story of George's life is a series of failures. Being unable to continue at the University, George began work at a stock broker's in the City. These were the days prior to the great depression. While George struggled at learning the ropes of his trade, dark clouds began forming on the financial horizon. _____.

OPTIONS

1) And in mid 1929, the market bottomed out leaving George and millions others jobless.
2) Suddenly, there was a shower of troubles for George.
3) Around the same time George was happily married to Celia.
4) As a consequence, George began worrying about his career.
5) The future was certainly not bright.

Question of the Day #59: (07-Nov-09)

Let *n* be an integer such that

$$1+\frac{1}{2}+\frac{1}{3}+\cdots+\frac{1}{30}+\frac{1}{31}=\frac{n}{31!}$$

Compute the remainder when *n* is divided by 17.

OPTIONS

1) 16
2) 7
3) 8
4) 9
5) None of these

Question of the Day #60: (08-Nov-09)

Each of the questions below contains a number of sentences. Each sentence has pairs of word(s)/phrases that are highlighted. From the highlighted word(s)/phrase(s), select the most appropriate word(s)/phrase(s) to form correct sentences. Then, from the options given, choose the best one.

1. His was a life devoted to and wasted in mere **sensual (A) / sensuous (B)** pleasures.
2. Spent in enjoyments of extravagance, pleasure, or sensual gratifications he had a long and **luxurious (A) / voluptuous (B)** holiday.
3. Teenagers are often **veracious (A) / voracious (B)** eaters.
4. They have a **tertiary (A) / ternary (B)** number system, because of the importance they give to the number three.
5. He is one of India's **premier (A) / premiere (B)** industrialists.

OPTIONS

1) AABBA
2) BABAB
3) ABBAB
4) ABBBA
5) BABBB

Question of the Day #61: (09-Nov-09)

What is the radius of a circle which passes through (0, 0) and (5/2, 1/2) and has the line $3x - 2y = 0$ as one of its diameters?

OPTIONS

1) 13/2
2) 13/4
3) $\frac{\sqrt{13}}{2}$
4) $\frac{\sqrt{13}}{4}$
5) $\sqrt{\frac{13}{2}}$

Question of the Day #62: (10-Nov-09)

The question below contains a number of sentences. Each sentence has pairs of word(s)/phrases that are highlighted. From the highlighted word(s)/phrase(s), select the most appropriate word(s)/phrase(s) to form correct sentences. Then, from the options given, choose the best one.

1. **Discreet (A) / discrete (B)** followers and servants, help much to reputation.
2. She finds it necessary and has sometimes felt it **expedient (A) / expeditious (B)** to excuse her husband for lacking in sense.
3. The professor's remark that the questions were **eminently (A) / imminently (B)** solvable left the students mocking at him.
4. It is the Prime Minister's prerogative to **elect (A) / select (B)** members of the cabinet.

OPTIONS

1) ABBA
2) BBBA
3) AAAB
4) BAAB
5) AABB

Question of the Day #63: (11-Nov-09)

The question below contains a paragraph followed by alternative summaries. Choose the option that best captures the essence of the paragraph.

Accounting provides information for several purposes through the maintenance of data, the analysis and interpretation of these data, and the preparation of various kinds of reports. Most accounting information is historical- that is, the accountant observes all activities that the organization undertakes, records their effects, and prepares reports summarizing what has been recorded; the rest consists of forecasts and plans for current and future periods. Accounting information can be developed for any kind of organization, not just for privately owned, profit-seeking businesses. One branch of accounting deals with the economic operations of entire countries.

OPTIONS

1) Accounting is the systematic development and analysis of information about the economic affairs of an organization for the purpose of forecasts and planning.
2) Accounting is the systematic development and analysis of information about the economic affairs of an organization and even nations for several purposes.
3) Accounting provides systematic analysis of information about the economic affairs of an organization for the purpose of forecasts and planning.
4) Accounting is the systematic development and analysis of information about the economic affairs of organizations including countries.
5) Accounting provides organizations and countries with information about the economic affairs for the purpose of forecasts and planning.

Question of the Day #64: (12-Nov-09)

The question below has five word pairs. Only one of the words in a word pair would fit the context of the sentence correctly. Find the option which enlists all the correct words for a question.

Archeologists have found books embedded in an **(A) implicated/ imbricated (B)** fashion under the broken castle. There were earlier no **(A) extant/extent (B)** copies of these books. The books narrate tales about life in that **(A) diffident/difficult (B)** era. People were being **(A) hanged/hung (B)** for no reason at all. They also speak about **(A) hardly/hardy (B)** people who fought the injustices of their time.

OPTIONS

1) BABAB
2) AABAB
3) BAAAB
4) BABBB
5) BABAA

Question of the Day #65: (13-Nov-09)

$$4x^2 + \frac{4x^2}{(2x+1)^2} = 15$$

What is the largest value that *x* can take?

OPTIONS

1) $\frac{5+\sqrt{31}}{4}$
2) $\frac{5+\sqrt{33}}{4}$
3) $\frac{3+\sqrt{21}}{2}$
4) $\frac{3+\sqrt{21}}{4}$
5) $\frac{5+\sqrt{31}}{2}$

Question of the Day #66: (14-Nov-09)

The question below has five word pairs. Only one of the words in a word pair would fit the context of the sentence correctly. Find the option which enlists all the correct words for a question.

The man who **(A) abetted/betted (B)** the bank robber has been caught. Last he was **(A) interrogated/interviewed (B)** he appeared quite **(A) reticent/reluctant (B)** and kept to himself. The **(A) taut/tout (B)** -lipped man only **(A) sited/cited (B)** ignorance of the robbery when pushed.

OPTIONS

1) AAABB
2) BAABB
3) AAAAB
4) AAAAA
5) BBBAA

Question of the Day #67: (15-Nov-09)

For how many positive integers *m*, is the following inequality true?

$$\left|\sqrt{m}-\sqrt{300}\right|<1$$

OPTIONS

1) 69
2) 68
3) 34
4) 35
5) None of these

Question of the Day #68: (16-Nov-09)

The question below has five word pairs. Only one of the words in a word pair would fit the context of the sentence correctly. Find the option which enlists all the correct words for a question.

The psychopath read the thriller with **(A) moribund/morbid (B)** interest. It thrilled him when he read about the murderer puncturing the **(A) palate/palette (B)** of the **(A) peasant/pheasant (B)**. He read with more interest as he read about more homicides. But as he **(A) pored/poured (B)** over the book, he came to a part where the murderer was caught and was **(A) persecuted/prosecuted (B)** in a court of law. That part he did not like and he put the book down.

OPTIONS

1) BAAAB
2) BBBBB
3) AAAAB
4) ABAAB
5) AAABA

Question of the Day #69: (17-Nov-09)

Two friends A and B can finish a certain piece of work in 12 and 18 days respectively, while working alone. But, when they work together, they start talking and their efficiency comes down by 20%. If one of them works alone for a few days, then the second works alone for a few days and then the both work together, the work gets over in 13 days. If the number of days for which A and B work alone is a prime number then which of the following can be determined?

OPTIONS

1) The number of days for which A worked alone
2) The number of days for which B worked alone
3) The number of days for which A and B worked together
4) All of these
5) None of these

Question of the Day #70: (18-Nov-09)

Striving to revive the world economy while simultaneously responding to the global climate crisis has raised a knotty question: are statistics giving us the right "signals" about what to do? In our performance-oriented world, measurement issues have taken on increased importance: what we measure affects what we do. If we have poor measures, what we strive to do, say, increase GDP, may actually contribute to a worsening of living standards. We may also be confronted with false choices, seeing trade-offs between output and environmental protection that don't exist. By contrast, a better measure of economic performance might show that steps taken to improve the environment are good for the economy.

The above argument leads to which of the following conclusions?

OPTIONS

1) We need a set of indicators that more accurately capture both well-being and sustainability.
2) GDP is a poor measure of well-being.
3) The demand to maximise GDP should be coupled with a demand to reduce air, water, and noise pollution.
4) What is good for the economy is not always good for the environment.
5) Measure of how well we are doing takes account of sustainability.

Question of the Day #71: (19-Nov-09)

The question below is followed by two statements, A and B. Answer each question using the following instructions:
Mark (1) if the question can be answered by using statement A alone but not by using statement B alone.
Mark (2) if the question can be answered by using statement B alone but not by using statement A alone.
Mark (3) if the question can be answered by using either of the statements alone.
Mark (4) if the question can be answered by using both the statements together but not by either of the statements alone.
Mark (5) if the question cannot be answered on the basis of the two statements.
Is the integer x prime?

A. $p! < x < (p + 1)!$, where p is not a prime number.
B. $p! + 2 \le x \le p! + p$, where p is a prime number.

OPTIONS

1) 1
2) 2
3) 3
4) 4
5) 5

Question of the Day #72: (20-Nov-09)

It was found that puppy fetuses would react to touch and/or pressure from the outside of the mother's abdomen. In addition, it is theorized that since puppies have such a well-developed sense of touch at birth, the sense of touch would also be well-developed before birth. Studies have found that "when a pregnant animal is petted, her litter is more docile". According to the study, this facilitates relaxation, emotional attachment, and socialization. Other studies have indicated that puppies that receive outside contact (petting of the mother) while in utero have a higher tolerance for touching than puppies that receive no contact at all.

Based on the above information, what can be concluded about the state of a puppy's sense of touch?

OPTIONS

1) One could theorise that gentle petting of the mother's abdomen could help to facilitate positive, beneficial puppy socialization with people.
2) One could theorise that puppies that are intolerant of touching have probably had a very cruel time in utero
3) One could theorise that for puppies, there is an exponential relationship between tolerance towards touching and socializing.
4) One could safely assume that the sense of touch is more keen in puppies than any other sense
5) One could conclude from the given information that the mother's abdomen is especially sensitive to touch and puppies shape their behaviour based on their mother's lifestyle.

Question of the Day #73: (21-Nov-09)

$$X = \frac{1}{\sqrt{4}+\sqrt{6}} + \frac{1}{\sqrt{6}+\sqrt{8}} + \ldots + \frac{1}{\sqrt{782}+\sqrt{784}}$$

What is the value of X?

OPTIONS

1) 10
2) 18
3) 26
4) 28
5) None of these

Question of the Day #74: (22-Nov-09)

UK researchers have found that a diet low in calcium can lead to an early onset of osteoporosis in women. Which is why, men can get osteoporosis and should watch the level of calcium in their food.

The author's conclusion about men is based on the assumption that:

OPTIONS

1) Low calcium may cause osteoporosis in men
2) Osteoporosis affects many people
3) Osteoporosis is caused by low calcium which is common among women
4) Since low calcium causes osteoporosis in women, it will have a similar effect on men too
5) Osteoposoris is a direct effect of low calcium

Question of the Day #75: (23-Nov-09)

A_n is the n^{th} term of the series which satisfies the following condition,

$A_{n+1} = A_n^2 + 3A_n + 1$

$$\text{If } A_1 = \frac{1}{3}$$

and

$$S = \left[\frac{1}{A_1 + 2} + \frac{1}{A_2 + 2} + \ldots + \frac{1}{A_{200} + 2}\right]$$

what is the least integer greater than S?

OPTIONS

1) 1
2) 2
3) 3
4) 4
5) 5

Question of the Day #76: (24-Nov-09)

Members of the fathers' rights movement state that feminist organizations invoke the spectre of domestic violence as propaganda directed against fathers and fathers' rights groups. They point to domestic violence studies based on the Conflict Tactics Scale (CTS), which show that men and women act violently toward their partners in about equal percentages. They argue that men comprise a "significant portion" of the victims of domestic violence, and they call for more services to be provided for male victims of domestic violence.

Which of the following statements strengthens the argument presented in the passage?

OPTIONS

1) Researchers argue that the real numbers for violence against men are likely to be higher, since male victims may be less likely to report abuse than female victims due to social stigmatization.
2) The percentage of shelters for battered men is much more than the percentage of shelters for women and children.
3) Many women's shelters assist male victims of domestic abuse but do not house men, instead offering hotel vouchers, counselling, case management, legal services and other support services.
4) Fathers' rights groups feel that the feminist rights movement ignores the violence perpetrated against men
5) Advocates cite government statistics that show that in 15% to 38% of the cases of violence, the victim is a spouse.

Question of the Day #77: (25-Nov-09)

In ΔABC, AM and CN are medians to the sides BC and AB, respectively. If AM and CN are perpendicular to each other, AM = 9 cm and CN = 6 cm, then ∠BAC =

OPTIONS

1) $\tan^{-1}\left(\frac{10}{7}\right)$
2) $\tan^{-1}\left(\frac{8}{7}\right)$
3) $\tan^{-1}\left(\frac{11}{7}\right)$
4) $\tan^{-1}\left(\frac{12}{7}\right)$
5) $\tan^{-1}\left(\frac{9}{7}\right)$

Question of the Day #78: (26-Nov-09)

All social animals have hierarchical societies in which each member knows its own place. Social order is maintained by certain rules of expected behaviour and dominant group members enforce order through punishment. However, higher order primates also have a sense of reciprocity and fairness. Chimpanzees remember who did them favours and who did them wrong.
Which of the following statements strengthens the argument presented in the passage?

OPTIONS

1) Chimpanzees are more likely to share food with individuals who have previously groomed them.
2) Humanity's closest living relatives are common chimpanzees and bonobos - and humans, being the most intelligent animals on the planet, of course, have a highly developed sense of reciprocity and fairness.
3) Though morality may be a unique human trait, many social animals, such as primates, dolphins and whales, have been known to exhibit pre-moral sentiments.
4) All social animals have had to restrain or alter their behaviour for group living to be worthwhile.
5) Like most behaviours that are found in societies throughout the world, social order must have been present in the ancestors of the human population before the dispersal from Africa.

Question of the Day #79: (27-Nov-09)

If $(a + b + c) = d\ (> 0)$, $a^3 + b^3 + c^3 = 3abc$,

and $X = \dfrac{a^2 + b^2 + c^2}{d^2}$

Then X =

OPTIONS

1) $\frac{1}{9}$
2) $\frac{1}{3}$
3) 1
4) 3
5) 9

Question of the Day #80: (28-Nov-09)

The anthropologist James Frazer saw myths as a misinterpretation of magical rituals, which were themselves based on a mistaken idea of natural law. According to Frazer, man begins with an unfounded belief in impersonal magical laws. When he realizes that his applications of these laws don't work, he gives up his belief in natural law, in favour of a belief in personal gods controlling nature — thus giving rise to religious myths. Meanwhile, man continues practising formerly magical rituals through force of habit, reinterpreting them as reenactments of mythical events. Finally, Frazer contends, man realizes that nature does follow natural laws, but now he discovers their true nature through science.
Which of the following statements best sums up the the main argument presented in the passage?

OPTIONS

1) Man progresses "from magic through religion to science."
2) By pitting mythical thought against modern scientific thought, such theories implied that modern man must abandon myth
3) 19th-century theories framed myth as a failed or obsolete mode of thought, often by interpreting myth as the primitive counterpart of modern science
4) The primitive mentality is a condition of the human mind, and not a stage in its historical development
5) Myths arose due to the lack of abstract nouns and neuter gender in ancient languages

Question of the Day #81: (29-Nov-09)

Let $N = aabb$ be a 4 digit natural number, such that the two three-digit numbers aab and abb are both prime. What is the sum of the digits of the smallest such N?

OPTIONS

1) 8
2) 10
3) 12
4) 14
5) None of these

Question of the Day #82: (30-Nov-09)

The term 'Male Abortion' was coined by Melanie McCulley, a South Carolina attorney, in her 1998 article, "The Male Abortion: The Putative Father's Right to Terminate His Interests in and Obligations to the Unborn Child". The theory is that when an unwed female becomes pregnant she has the option of abortion, adoption, or parenthood; and argues, in the context of legally recognized gender equality, that in the earliest stages of pregnancy the father should have the right to relinquish all future parental rights and financial responsibility – leaving the informed mother with the same three options. This would allow the woman time to make an informed decision and give men the same reproductive rights as women.
Which of the following statements is the author of the passage most likely to agree with?

OPTIONS

1) The availability of abortion should not relieve men of equal financial responsibility to their child.
2) An unwed female does not easily get support from the father of the child.
3) Fathers should be given equal power over a decision about their offspring
4) The law recognises abortion as the exclusive right of men
5) Men do not want to carry the responsibility of parenthood and "Male Abortion" recognises it.

Question of the Day #83: (01-Dec-09)

For how many values of p do the equations $x^2 + 3px + 36 = 0$ and $x^2 - 4x + p = 0$ have real roots if $p > 0$?

OPTIONS

1) 3
2) 1
3) 4
4) Infinite
5) Cannot be determined

Question of the Day #84: (02-Dec-09)

Computer "viruses" are known to everyone and their ability to spread is also well known. But it is equally helpful to portray the biosphere of real, living microbes as a world wide web of informational exchange. Microbes exchange information with each other and their environment, with DNA serving as the packets of data going every which way. Microbes differ from computer viruses because they not only spread but evolve, and do so at a faster pace than their hosts. Microbes are in fact well designed to exploit this difference to their advantage in the war that occasionally erupts between them and other species - a war we see as disease and death.
The world wide web of microbes as presented in the argument rests most accurately on which of the following assumptions?

OPTIONS

1) The capacity of computer viruses to transfer information to other computers.
2) Living viruses can integrate their own DNA into their host's genetic material, and this can be copied and passed on.
3) Many segments of human DNA originated from encounters with viruses which "downloaded" their information into human cells.
4) The sheer number of microbes, their ability to exchange information, and the speed of transmission are akin to the World Wide Web.
5) The microbe's capacity to transfer information to other organisms.

Question of the Day #85: (03-Dec-09)

Mahesh, a mathematics teacher, invested a certain amount for 15 years in a term deposit scheme with a bank. He sat down to find how much interest he would earn for his money each year. He found out that he would get Rs. 2,000 as interest for the 5^{th} year and Rs. 8,000 as interest for the 11^{th} year. If the interest is compounded annually, the total amount that Rajesh, a friend of Mahesh, would get if he invested Rs. 5,000 for 15 years in the same scheme is:

OPTIONS

1) Rs. 32,000
2) Rs. 16,000
3) Rs. 1,60,000
4) Rs. 3,20,000
5) None of these

Question of the Day #86: (04-Dec-09)

European governments are adamantly opposed to capital punishment – the European Union bans it outright – and some Europeans consider its use in America barbaric. Indeed, many European intellectuals argue that not just capital punishment, but punishment in general, does not deter criminals.

Which of the following, if true, most seriously challenges the European intellectuals' argument?

OPTIONS

1) Highly unpleasant actions are unnecessary to prevent even worse behaviour that takes the lives of innocent victims.
2) Europeans have seen their crime rates increase during the past twenty years, whereas American rates have fallen.
3) Europeans have had crime rates well below American rates for the past half-century.
4) The available data on the impact of capital punishment on crime rate are quite limited.
5) Capital punishment makes a murderer fight harder to avoid being captured.

Question of the Day #87: (05-Dec-09)

$A = 25^{\log_5[\log_5(3x^2+10x)]}$

$B = 5[\log_5(3x^2+10x)] + 6$

If $A - B = 0$, then what is the sum of all the possible values of x?

OPTIONS

1) $\frac{-20}{3}$
2) $\frac{-9}{7}$
3) 0
4) 1
5) None of these

Question of the Day #88: (06-Dec-09)

The only way to reduce corruption permanently is to drastically cut back government's role in the economy. High priority should go to eliminating the thousands of petty, nuisance regulations and laws on the books in most countries which do more harm than good, and that also encourage bribery and other efforts to unfairly influence government officials

Which of the following is the underlying assumption in the above argument?

OPTIONS

1) Deregulation increases corruption.
2) Regulation harms the government officials.
3) Without regulation, corruption cannot be reduced.
4) Corrupt actions involve illicit payoffs to government officials.
5) Economy of a country depends on government officials.

Question of the Day #89: (07-Dec-09)

If $15x^2 - 214x + 455 \geq 0$ and $x - 2 > 0$, then what is the minimum value of the following expression

$$\left(x - 1 + \frac{1}{x-2}\right)$$

OPTIONS

1) 3
2) $\frac{49}{15}$
3) $\frac{49}{13}$
4) $\frac{53}{17}$
5) $\frac{55}{17}$

Question of the Day #90: (08-Dec-09)

Many intellectuals in the United States and Eastern Europe believe that West European social welfare policies should be a blueprint for action in their own countries. But those policies are financed by high taxes and costly mandates on business that are mainly responsible for the enormous increase in unemployment during the past decade and a half.

Which of the following can be validly concluded from the above?

OPTIONS

1) West European social welfare policies will not work in the United States and Eastern Europe.
2) West European social welfare policies are ineffective.
3) The degree of taxation and regulation prevailing in Eastern European nations is very high.
4) People in Western Europe are healthier than those in the United and Eastern Europe.
5) None of the above.

Question of the Day #91: (09-Dec-09)

The total cost of production of n tube lights per day by Glolight is given by the following function.

$C(n) = n^2 + 10n + 363$

Selling price per unit of n units produced in a day is given by the following function.

$S(n) = 2(80 - n)$

If the number of units of tube lights sold per day is equal to number of units of tube lights produced per day then how many units should the factory produce per week to maximize its weekly profit?

Production is done on all seven days of the week.

OPTIONS

1) 70
2) 175
3) 77
4) None of these

Question of the Day #92: (10-Dec-09)

This question consists of two capitalized words that have a certain relationship to each other, followed by pairs of words. Choose the pair that is RELATED to each other in the same way as the capitalized pair.

Nun : Habit

OPTIONS

1) Church : Religion
2) Monk : Mendacious
3) Soldier : Uniform
4) Pilot : Plane
5) Pope : Papal

Question of the Day #93: (11-Dec-09)

$f(x) = \text{cosec}\, x - \frac{1}{x}$

$\lim_{x \to 0} f(x) =$

OPTIONS

1) 0
2) 0.5
3) 1
4) −1

Question of the Day #94: (12-Dec-09)

This question consists of five groups of jumbled phrases, of which only one is grammatically INCORRECT. Identify the INCORRECT option.

OPTIONS

1) as some are theorizing / presently / in quantum thermodynamics
2) or air in a steam engine / or it can be the body / of a tropical cyclone
3) surround a single atom / resonating energy or it can be / a body of steam
4) that / something can be / the volumetric region
5) or it could also be / just one nuclide / (i.e. a system of quarks)

Question of the Day #95: (13-Dec-09)

In a certain country, all citizens are either of type T (who always speak the truth) or of type F (who always lie). You meet two citizens A and B. A says, "B is of type F." B says, "A and I are not the same type of citizens." Which of the following is true?

OPTIONS

1) Both A and B are of type T
2) Both A and B are of type F
3) A is of type T and B is of type F
4) A is of type F and B is of type T

Question of the Day #96: (14-Dec-09)

Items 1 to 5 (First Set) are parts of the human anatomy. Items 6 to 10 (Second Set) are meanings of idiomatic phrases. Match each item in the second set with an item in the first set in order to identify the idiomatic phrases.

1) Wrist
2) Shoulder
3) Eye
4) Tongue
5) Leg
6) to be troublesome to deal with
7) a superstitious way to say "Good Luck"
8) to avoid talking
9) to be mildly punisheds
10) cherished above all others

OPTIONS

1) 1-8, 2-6, 3-9, 4-7, 5-10
2) 1-9, 2-7, 3-6, 4-8, 5-10
3) 1-7, 2-10, 3-6, 4-9, 5-8
4) 1-9, 2-6, 3-10, 4-8, 5-7
5) 1-10, 2-8, 3-9, 4-7, 5-6

Question of the Day #97: (15-Dec-09)

There are three friends Amar, Akbar and Anthony. Each of them plays one or more sports out of cricket, football and hockey for their school. The following facts are known:

At least two of them play football. Each sport is played by at least one of them. Each sport is played by a different number of people. Amar cannot play hockey due to a childhood injury. Akbar plays only one sport. Not all play cricket.

Which of the following is not true?

OPTIONS

1) Amar plays Cricket
2) Anthony plays Hockey
3) Akbar plays Cricket
4) Anthony plays Cricket

Question of the Day #98: (16-Dec-09)

Which two sentences in the following convey the same idea? Choose from the combinations listed below:

1. He was told that
   mum's the word.
2. He answered saying,
   "Elvis has left the building".
3. He was asked to pipe down.
4. He replied that the employee
   could not cut the mustard.
5. He told them to let
   bygones be bygones.

OPTIONS

1) 1, 5
2) 2, 4
3) 3, 5
4) 2, 1
5) 1, 3

Question of the Day #99: (17-Dec-09)

Ram is sitting on the ground. Shyam is standing on a balcony with his hand exactly 10 metres vertically above Ram. Each of them has a ball in his hand. Ram throws up his ball and Shyam lets go of his at the same instant. If the balls collide midway between Ram and Shyam, with what speed did Ram throw up his ball?

Acceleration due to gravity = 10 m/s^2.

OPTIONS

1) 2.5 m/s
2) 5 m/s
3) 10 m/s
4) Cannot be determined

Question of the Day #100: (18-Dec-09)

Items 1 to 5 (First Set) are several meanings of the word COME. Items 6 to 10 (Second Set) are their appropriate usages. Match each item in the second set with an item in the first set in order to identify their correct usages.

1) to arrive by movement
2) to occur at a certain point
3) to befall
4) to give an impression
5) to have priority
6) The police assured the tourists
that no harm would come to them.
7) She comes across as quite
an intelligent girl.
8) The students are coming
home by bus.
9) My family comes first.
10) May comes after April.

OPTIONS

1) 1-10, 2-8, 3-7, 4-9, 5-6
2) 1-8, 2-10, 3-6, 4-7, 5-9
3) 1-6, 2-9, 3-10, 4-8, 5-7
4) 1-8, 2-6, 3-9, 4-7, 5-10
5) 1-9, 2-7, 3-6, 4-10, 5-8

SOLUTIONS

Solution #01: (10-Sep-09)

Let the number k have 8 factors.

If a number $N = a^m b^n c^p \ldots$ where $a,b,c\ldots$ are prime numbers, then the number of factors of $N = (m + 1)(n + 1)(p + 1)\ldots$

Here, $N = k$ and $(m + 1)(n + 1)(p + 1) = 8$

The number of ways in which 8 can be written as a product of two or more numbers is,

$8 = 1 \times 8$
$= 2 \times 4$
$= 2 \times 2 \times 2$

Case 1: $8 = 1 \times 8$
To satisfy this case, $k = a^{(8-1)}\, b^{(1-1)}$, where a and b are prime numbers.
$\therefore$ In this case $k = a^7$, for some prime number a.
$\therefore k^3 = a^{21}$, for some prime number a.
$\therefore$ The number of factors of k^3 in **Case 1** $= (21 + 1) = 22$

Case 2: $8 = 2 \times 4$
To satisfy this case, $k = a^{(2-1)}\, b^{(4-1)}$, where a and b are prime numbers.
$\therefore$ In this case $k = a^1 b^3$, for some prime numbers a and b.
$\therefore k^3 = a^3 b^9$, for some prime numbers a and b.
$\therefore$ The number of factors of k^3 in **case 2** $= (3 + 1) \times (9 + 1)$
$= 4 \times 10$
$= 40$

Case 3: $8 = 2 \times 2 \times 2$
To satisfy this case, $k = a^{(2-1)}\, b^{(2-1)}\, c^{(2-1)}$ where a, b and c are prime numbers.
$\therefore$ In this case $k = a^1 b^1 c^1$, for some prime numbers a, b and c.
$\therefore k^3 = a^3\, b^3\, c^3$, for some prime numbers a, b and c.
$\therefore$ The number of factors of k^3 in **case 3** $= (3 + 1) \times (3 + 1) \times (3 + 1)$
$= 4 \times 4 \times 4$
$= 64$

There is no other way of expressing 8 as a product of positive integers.
$\therefore$ The total number of factors of k^3 can be either 22, 40 or 64 but not 27.
Hence, option 2.

Discuss the solution with Testfunda users.

Solution #02: (11-Sep-09)

The relationship is antonymous. “Ephemeral” means ‘temporary’; “Perennial” means ‘enduring’. ‘Analogous’ means ‘similar, alike or uniform’. ‘Differentiated’ is ‘non uniform or dissimilar’. ‘Inducible’ means ‘persuaded or influenced’ and ‘Deducible’, which means ‘inferable or concludable’ are not antonyms.

In Option 5, ‘transcendental’ and ‘metaphysical’ are almost synonymous with both of them being meaning ‘lofty or abstract’.

Option 4 is verb and noun and has no apparent relationship except in appearance. ‘Affect’ means ‘to influence’ and ‘Affectation’ means ‘an artificial trait’. They show no antonymous relationship. Option 1 is a change of form. ‘Evolution’ leads to ‘transformation’. They are certainly not antonyms.

Hence, the correct answer is option 3.The relationship is antonymous. “Ephemeral” means ‘temporary’; “Perennial” means ‘enduring’.

‘Analogous’ means ‘similar, alike or uniform’. ‘Differentiated’ is ‘non uniform or dissimilar’. ‘Inducible’ means ‘persuaded or influenced’ and ‘Deducible’, which means ‘inferable or concludable’ are not antonyms.

In Option 5, ‘transcendental’ and ‘metaphysical’ are almost synonymous with both of them being meaning ‘lofty or abstract’.

Option 4 is verb and noun and has no apparent relationship except in appearance. ‘Affect’ means ‘to influence’ and ‘Affectation’ means ‘an artificial trait’. They show no antonymous relationship. Option 1 is a change of form. ‘Evolution’ leads to ‘transformation’. They are certainly not antonyms.

Hence, the correct answer is option 3

Discuss the solution with Testfunda users.

Solution #03: (12-Sep-09)

To find the maximum value of one of the 30 integers, we minimize the remaining 29 integers

As all the integers are positive and distinct, the minimum values that the 29 integers can have is 12381, 12382, 12383, . . ., 12408, 12409

The sum of the first 29 numbers = 12381 + 12382 + ...+ 12409

= (12380 + 1) + (12380 + 2) + ...+ (12380 + 29)

= (12380 × 29) + (1 + 2 + ... + 29)

= 359455

The sum of 30 integers with an average 12410 = 12410 × 30

= 372300

The maximum value that the 30th integer can take is 372300 − 359455 = 12845

Hence, option 3.

Note: Another method for calculating 12381 + 12382 + ...+ 12409 is,

12381 + 12382 + ... + 12409 = (12000 × 29) + (300 × 19) + (400 × 10) + (80 × 9) + (90 × 10) + 3 × (1 + 2 + ... + 9)
= (12000 × 29) + (300 × 19) + (400 × 10) + (80 × 9) + (90 × 10) + (3 × 45)

But the method given in the solution is quicker.

Discuss the solution with Testfunda users.

Solution #04: (13-Sep-09)

The relationship is that of synonym. “Prevaricate”- to deviate from the truth and “Equivocate”- ‘to avoid committing oneself to what one says’- meaning to lie or be evasive. This synonymous relationship is to be found only in option 3.
‘Procrastinate’- ‘to put off or delay’ is synonymous with ‘protract’- ‘to extend or delay’.
‘Reschedule’ and ‘resume’ are almost opposites.
‘Obviate’ means ‘to prevent’ and ‘elucidate’ is to explain.
‘Advocate’ and ‘abandon’ are also almost opposites and show no synonymous relationship.
Hence, the correct answer is option 3.

Discuss the solution with Testfunda users.

Solution #05: (14-Sep-09)

The number of ways of writing a number N as product of two integers is equal to the number of rectangles that can be formed with integral sides whose area is N square units.

It is given that the number of ways of writing $5n$ as a product of two integers is 9 and $5n$ is not a perfect square.

$\therefore$ Number of factors of $5n = 9 \times 2 = 18$

It is given that the number of ways of writing $7n$ as a product of two integers is 12 and $7n$ is not a perfect square.

$\therefore$ Number of factors of $7n = 12 \times 2 = 24$

Now, $18 = 1 \times 18$ or 2×9 or 3×6

Case 1: For $18 = 1 \times 18$

$5n = a^{(1-1)} \times b^{(18-1)} = b^{17}$, for some prime numbers a and b.

$\therefore 5n = b^{17}$, for some prime number b.

$\therefore b = 5$ and $n = 5^{16}$

But then $7n = 7 \times 5^{16}$

$\therefore$ Number of factors of $7n = (1 + 1) \times (16 + 1)$

$= 2 \times 17$

$= 34$

$\therefore$ Case 1 is inadmissible.

Case 2: For $18 = 3 \times 6$

$5n = a^{(3-1)} \times b^{(6-1)} = a^2b^5$, for some prime numbers a and b.

$\therefore 5n = a^2b^5$, for some prime numbers a and b.

$\therefore$ As 5 is a prime number, therefore, either $a = 5$ or $b = 5$.

Subcase 1: $a = 5$

$\therefore 5n = 5^2b^5$, for some prime number b.

$\therefore n = 5b^5$, for some prime number b.

$\therefore 7n = 7 \times 5 \times b^5$

Either $b = 7$ or b is a distinct prime number.

But b cannot be a distinct prime number as $35n$ has to be a perfect square.

If $b = 7$ then $7n = 7^6 \times 5$

The number of factors of $7n = (6 + 1) \times (1 + 1)$

$= 7 \times 2$

$= 14$ (inadmissible)

Subcase 2: $b = 5$

$\therefore 5n = a^2 5^5$, for some prime number a.

$\therefore n = 5^4 a^2$, for some prime number a.

$\therefore 7n = a^2 \times 5^4 \times 7$

Either $a = 7$ or a is a distinct prime number but in both the cases $35n$ will not be a perfect square.

$\therefore$ Case 2 is inadmissible.

Case 3: $18 = 2 \times 9$

$5n = a^{(2-1)} \times b^{(9-1)} = a^1 b^8$, for some prime numbers a and b.

$\therefore 5n = a^1 b^8$, for some prime numbers a and b.

$\therefore$ As 5 is a prime number, therefore, either $a = 5$ or $b = 5$.

Subcase 1: $a = 5$

$\therefore 5n = 5^1 b^8$, for some prime number b.

$\therefore n = b^8$, for some prime number b.

$\therefore 7n = 7 \times b^8$

In this case $35n$ will not be a perfect square.

$\therefore$ Subcase 1 is inadmissible.

Subcase 2: $b = 5$

$\therefore 5n = a^1 5^8$, for some prime number a .

$\therefore n = 5^7 a$, for some prime number a.

$\therefore 7n = 7 \times 5^7 \times a$

Either $a = 7$ or a is a distinct prime number.

If a is a distinct prime number then,

Number of factors of $7n = (1 + 1) \times (7 + 1) \times (1 + 1)$

$= 2 \times 8 \times 2$

$= 32$ (inadmissible)

If $a = 7$ then,

$7n = 7^2 \times 5^7$

Number of factors of $7n = (2 + 1) \times (7 + 1)$

$= 3 \times 8$

$= 24$

Also, $35n = 7^2 \times 5^8$

$\therefore 35n$ is also a perfect square.

$\therefore a = 7$ and $b = 5$

The number of ways of writing $(7^2 \times 5^8)$ as a product of two numbers is equal to the number of rectangles with integral sides whose area is 35 square units.

The number of rectangles with integral sides that have area $35n$

$$= \frac{(2+1) \times (8+1) + 1}{2} \quad \ldots [\because 35n \text{ is a perfect square}]$$

$= 14$

Hence, option 2.

Discuss the solution with Testfunda users.

Solution #06: (15-Sep-09)

Option 1 is incorrect because it states that Yeats's symbolism arose from his own experiences.
Option 2 is ambiguous and awkward in 'achieved peculiar vitality in alignment with his own experience.' Therefore, it is eliminated.
Option 3 is partial- it misses the very important point about how Yeats's symbolism achieved vitality.
Option 4 is incorrect because it states "based on traditional images with a peculiar vital quality" distorting the ideas.
Option 5 captures the essence and more importantly does not distort what is stated in the paragraph.
Hence, the correct answer is option 5.

Discuss the solution with Testfunda users.

Solution #07: (16-Sep-09)

The idea is not to divide the numbers directly but to find a divisibility rule and use it.

The remainders given by 1 and 100 on division by 101 are 1 and −1 respectively.

Also, all the numbers given in the options are twelve digit numbers.

So we will find a condition such that a number *abcdefghijkl* is divisible by 101.

$$abcdefghijkl = (ab \times 10^{10}) + (cd \times 10^{8}) + (ef \times 10^{6}) + (gh \times 10^{4}) + ij \times 10^{2} + kl$$

$$= [ab \times (10^2)^5] + [cd \times (10^2)^4] + [ef \times (10^2)^3] + [gh \times (10^2)^2] + [ij \times 10^2] + kl$$

Remainder given by *abcdefghijkl* on division by 101

$$= \frac{[ab \times (10^2)^5] + [cd \times (10^2)^4] + [ef \times (10^2)^3] + [gh \times (10^2)^2] + [ij \times 10^2] + kl}{101}$$

$$= \frac{[ab \times (101-1)^5] + [cd \times (101-1)^4] + [ef \times (101-1)^3] + [gh \times (101-1)^2] + [ij \times (101-1)] + kl}{101}$$

$$= \left[\frac{ab}{101} \times (-1)^5\right] + \left[\frac{cd}{101} \times (-1)^4\right] + \left[\frac{ef}{101} \times (-1)^3\right] + \left[\frac{gh}{101} \times (-1)^2\right] + \left[\frac{ij}{101} \times -1\right] + \frac{kl}{101}$$

$$= -\frac{ab}{101} + \frac{cd}{101} - \frac{ef}{101} + \frac{gh}{101} - \frac{ij}{101} + \frac{kl}{101}$$

$$= \frac{(kl - ij + gh - ef + cd - ab)}{101}$$

∴ *abcdefghijkl* is divisible by 101 if *kl* − *ij* + *gh* − *ef* + *cd* − *ab* is divisible by 101.

Also if it is not, the remainder obtained on division of *abcdefghijkl* by 101 is same as the remainder obtained on division of *kl* − *ij* + *gh* − *ef* + *cd* − *ab* by 101.

We apply this divisibility rule to the given options.

Option 1

123456789123 gives the same remainder as 23 − 91+ 78 − 56 + 34 − 12 = −24 = 101 − 24 = 77 on division by 101.

∴ 123456789123 gives a remainder 77 on division by 101.

Option 2

231456789231 gives the same remainder as 31 − 92 + 78 − 56+14 − 23 = −48 = 101 − 48 = 53 on division by 101.

∴ 231456789231 gives a remainder 53 on division by 101.

Option 3

312456789312 gives the same remainder as 12 – 93 + 78 – 56 + 24 – 31 = –66 = 101 – 66 = 35 on division by 101.

∴ 312456789312 gives a remainder 35 on division by 101.

Option 4

213456789213 gives the same remainder as 13 – 92 + 78 – 56 + 34 – 21 = –44 = 101 – 44 = 57 on division by 101.

∴ 213456789213 gives remainder 57 on division by 101.

∴123456789123 gives the largest remainder.

Hence, option 1.

Discuss the solution with Testfunda users.

Solution #08: (17-Sep-09)

The midst of a bust and the feeling the need to do something are related. Hence the header statement is related to statement F. This eliminates options 1,2 and 3.
The 'but' in D follows from F. Therefore, option 5 is eliminated.
The 'bottom of the cycle' and the 'top of the cycle' are logically linked in BC which in turn is linked with the mention of 'the cycle' in statement D. "We need to to acknowledge"- E and "if we don't"- G go well together making the series FDBCE the most logical sequence.
Hence, the correct answer is option 4.

Discuss the solution with Testfunda users.

Solution #09: (18-Sep-09)

We know that x^2 gives the same remainder as 100 does on division by 19.

$\therefore x^2$ gives remainder 5 on division by 19.

$\therefore x^2 - 5$ is divisible by 19.

Also, $x^2 - 5 - 95$ will be divisible by 19.

[**Note:** We do this to convert $x^2 - 5$ in the form $(x - a)(x + a)$, where a is an integer in order to simplify calculations.]

$\therefore x^2 - 100$ is divisible by 19.

$\therefore (x - 10)(x + 10)$ is divisible by 19.

$\therefore$ Either $(x - 10)$ is divisible by 19 or $(x + 10)$ is divisible by 19.

Case 1: $(x - 10)$ is divisible by 19

$\therefore x = 10, 29, 48, 67, 86$

Case 2: $(x + 10)$ is divisible by 19

$\therefore x = 9, 28, 47, 66, 85$

$\therefore x$ can take 10 values in all.

Hence, option 4.

Discuss the solution with Testfunda users.

Solution #10: (19-Sep-09)

We need to first understand a critic has written the paragraph about Kallat's art and then uses probably one of his quotes to close the paragraph. "The urban milieu of Mumbai remains his primary muse..." the details of this life are spelt out in the paragraph. An apt comment from the artist will explain this 'muse' of the artist. No other comment of the writer is directly related to what the critic has explained in the paragraph. In order to explain the influence of Mumbai life on the artist the critic uses the quote from the writer stated in option 5. No other option would help the critic this way. Therefore, options 1,2,3 and 4 can be eliminated. The correct answer option must link with Kallat's "primary muse"- "the urban milieu of Mumbai".
Hence, the correct answer is option 5.

Discuss the solution with Testfunda users.

Solution #11: (20-Sep-09)

Let the side lengths of the rectangular floor be m and n.
Area of each tile is 1 square unit.

∴ Total number of tiles used mn.

Area to be covered with blue tiles = $(m - 2)(n - 2)$

$$= mn - 2m - 2n + 4$$

∴ The number of purple tiles = total number of tiles − number of blue tiles

$$= mn - (mn - 2m - 2n + 4)$$

$$= 2m + 2n - 4$$

As, the number of blue tiles is equal to the number of purple tiles, we have

$2m + 2n - 4 = mn - 2m - 2n + 4$

∴ $mn - 4m - 4n + 8 = 0$

∴ $(m - 4)(n - 4) = 8 = 8 \times 1 = 4 \times 2 = 2 \times 4 = 1 \times 8$

As, m, n are integers, so are $m - 4$ and $n - 4$.

∴ $m - 4 = 8$ and $n - 4 = 1$ which gives $(m, n) = (12, 5)$

Similarly from the other cases, we get $(m, n) = (8, 6), (6, 8), (5, 12)$

∴ 12, 5, 6 and 8 units can be side length of the rectangular floor.

∴ Only 16 cannot be the side length of the rectangular floor.

Hence, option 5.

Discuss the solution with Testfunda users.

Solution #12: (21-Sep-09)

The gist of the passage is: Quantity theory of money is the foundation stone of Monetarism; the theory is built on the Fisher equation, MV = PT; V and T are constant. Hence M (stock of money) = P (price level). Increase M, the price level increases. Without the formula and other details option 4 captures this essence.
Option 1 mistakes "Monetarism" for "Quantity theory of money".
Option 2 and 5 miss mentioning the very important "Quantity theory of money" part.
Option 3 is a nonsensical option.
Hence, the correct answer is option 4.

Discuss the solution with Testfunda users.

Solution #13: (22-Sep-09)

To find the value of A, we multiply and divide it by $\left(1-\frac{1}{3}\right)=\frac{2}{3}$

$$\therefore A=\frac{3}{2}\left(1-\frac{1}{3}\right)\left(1+\frac{1}{3}\right)\left(1+\frac{1}{9}\right)\left(1+\frac{1}{81}\right)\left(1+\frac{1}{3^8}\right)\ldots\left(1+\frac{1}{3^{32}}\right)$$

$$=\frac{3}{2}\left(1^2-\left(\frac{1}{3}\right)^2\right)\left(1+\frac{1}{9}\right)\left(1+\frac{1}{81}\right)\left(1+\frac{1}{3^8}\right)\ldots\left(1+\frac{1}{3^{32}}\right)$$

$$=\frac{3}{2}\left(1-\frac{1}{9}\right)\left(1+\frac{1}{9}\right)\left(1+\frac{1}{81}\right)\left(1+\frac{1}{3^8}\right)\ldots\left(1+\frac{1}{3^{32}}\right)$$

$$=\frac{3}{2}\left(1-\frac{1}{81}\right)\left(1+\frac{1}{81}\right)\left(1+\frac{1}{3^8}\right)\ldots\left(1+\frac{1}{3^{32}}\right)$$

.

.

$$=\frac{3}{2}\left(1-\frac{1}{3^{64}}\right)$$

$$=\frac{3}{2}\times\frac{(3^{64}-1)}{3^{64}}$$

$$\therefore \frac{A}{B}=\frac{3}{2\times 3^{64}}=(2\times 3^{63})^{-1}$$

Hence, option 2.

Discuss the solution with Testfunda users.

Solution #14: (23-Sep-09)

Options 1 and 3 miss out on the “countries” part. Further, analysis of information for the purpose of forecasts and planning is factually incorrect.
Option 4 misses out on the ‘purposes’ part.
In option 2 it is compressed into “development of information”.
Option 5 also misses out on the development of data.
Hence, the correct answer is option 2.

Discuss the solution with Testfunda users.

Solution #15: (24-Sep-09)

X and Y have no common prime factors.

This means that gcd(X, Y) = 1.

Also, $X^2 + Y^2 = (X + Y)^2 - 2XY$

We know that Z divides ($X^2 + Y^2$) and ($X + Y$), and therefore, it will divide either 2 or XY.

Case 1: Z divides XY.

∴ Z either divides X or divides Y. ...[∵ gcd(X, Y) = 1]

If Z divides X, since it divides ($X + Y$), it must divide Y as well and vice versa.

∴ Z divides X and Y both.

∴ As gcd(X, Y) = 1, therefore, Z = 1

Case 2: Z divides 2.

From this case , Z = 1 or 2.

∴ From case 1 and case 2, Z can take two values 1 and 2.

Hence, option 3.

Discuss the solution with Testfunda users.

Solution #16: (25-Sep-09)

The conclusion is that exposure to microbes strengthens the immune system aganist diseases.
We look at the options in the order of correctness:
Option 4 supports the argument.
Options 2 and 5 provide data that does not directly challenge the conclusion. Option 2 supports the immune system being strengthened by growing up on farms - this is another source of reducing allergies, but does not weaken the conclusion. Option 5 talks about the process of getting allergies - this again does not weaken the conclusion.
The choice is between option 1 and 3. Option 3 states that children suffering from infections etc had been exposed to disease causing microorganisms by older siblings and attended nursery – and had not improved immunity. This directly contradicts the paragraph, and is more direct than option 1 with "day care" (which brings in issues of whether the children are taken care of properly.....).
Hence, the correct answer is option 3.

Discuss the solution with Testfunda users.

Solution #17: (26-Sep-09)

Consider the first term of A.

$$\frac{x}{1-x^2} = \frac{1+x-1}{1-x^2}$$

$$= \frac{1+x}{1-x^2} - \frac{1}{1-x^2}$$

$$= \frac{1}{1-x} - \frac{1}{1-x^2}$$

Similarly, $\frac{x^2}{1-x^4} = \frac{1}{1-x^2} - \frac{1}{1-x^4}$

.

.

$$\frac{x^{32}}{1-x^{64}} = \frac{1}{1-x^{32}} - \frac{1}{1-x^{64}}$$

Adding all these terms, we see that the first term of each pair cancels with the second term of the previous pair, leaving only the first and last terms of the entire sequence.

$$\therefore A = \frac{1}{1-x} - \frac{1}{1-x^{64}}$$

Hence, option 2.

Discuss the solution with Testfunda users.

Solution #18: (27-Sep-09)

There is nothing in the paragraph to support options 1 and 4.
Option 2 goes beyond the paragraph - "less than 80%", aganist the 80% stated in the paragraph. Given the fact that the Aviation sector will not meet this target, there is no reason for us to conclude that the overall target will be exceeded.
We are left to choose between options 3 and 5. Look at the argument made in the paragraph: The overall target for reduction (of emissions in the UK) by 2050 is 80%. This includes aviation industry. The target for aviation is now reduced (to 1990 levels rather than those of 2005 – obviously in 2005 aviation industry emissions were greater).
The overall target can be achieved in two ways -

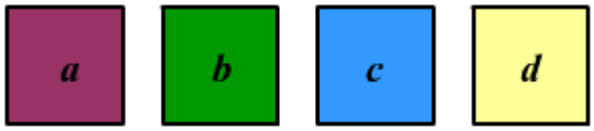
1. Having the aviation sector fulfill its share by dropping to 80% of 1990 levels, or
2. By having other sectors of the economy make deeper cuts to make up the loss caused by the aviation sector not picking up its share.

Method A may affect the aviation sector, but Method B does not. Hence, the "will" in option 5 is difficult to justify.
The "may" in option 3 makes it the correct option, since it fits in with Method B, and the "may" let us choose it with even the possibility of it happening.
Hence, the correct answer is option 3.

Discuss the solution with Testfunda users.

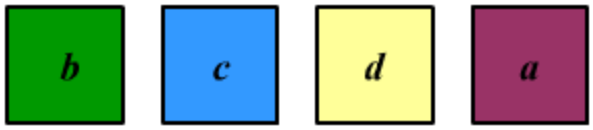
Solution #19: (28-Sep-09)

Let the cubes be initially kept in the following order.



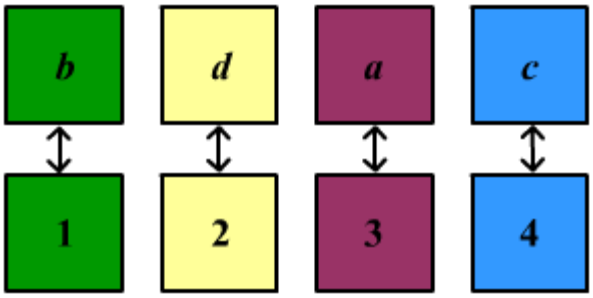
The labels 1, 2, 3, 4 are camouflaged as *a*, *b*, *c*, *d* (In some order).

Step 1: Amar takes the leftmost cube and places it rightmost.



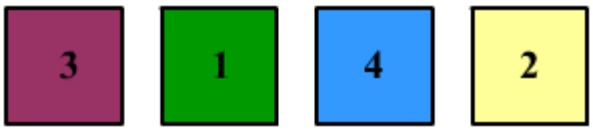
Step 2: Amar takes the third cube from the right and places it rightmost.

After the two steps the labels on the blocks get arranged in ascending order.



∴ $a = 3$, $b = 1$, $c = 4$ and $d = 2$

∴ Initially the cubes were arranged in the following order.



Hence, option 4.

Note: "Exchange it with the rightmost cube" and "places it rightmost" have different connotations.

Discuss the solution with Testfunda users.

Solution #20: (29-Sep-09)

"Proscribe" implies 'a ban'. "Prescribe" implies 'ordering the use of a medicine or other treatment' and would be the apt word here. Therefore, options 1 and 3 are eliminated.
"Tantamount" means 'equal to'; "paramount" means 'supreme'. "Tantamount" is the correct word contextually. Therefore, option 5 is eliminated.
"Denigrate" is to 'belittle or defame' and is the appropriate word in the context of the sentence.
"Degrade" means 'a lowering of grade'. Therefore, option 4 is eliminated.
Hence, the correct answer is option 2.

Discuss the solution with Testfunda users.

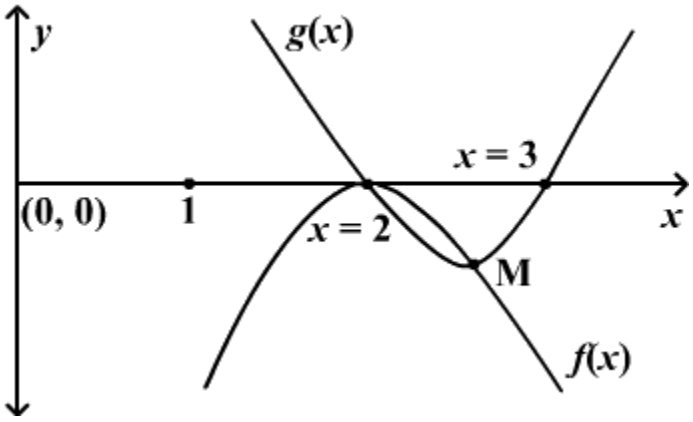
Solution #21: (30-Sep-09)

We know that, $f(x) < 0$ for all values of x, except $x = 2$. Also, $f(x)$ is a parabola of the form $y = -x^2$, therefore, $f(x)$ will be a downward parabola with vertex at $x = 2$.

$\therefore f(x) = -(x-2)^2$

Also, $g(x) < 0$ for all values of x except $2 \le x \le 3$. Also, $g(x)$ is a parabola of the form of $y = x^2$, therefore, $g(x)$ will be an upward parabola intersecting the x axis at $x = 2$ and $x = 3$.

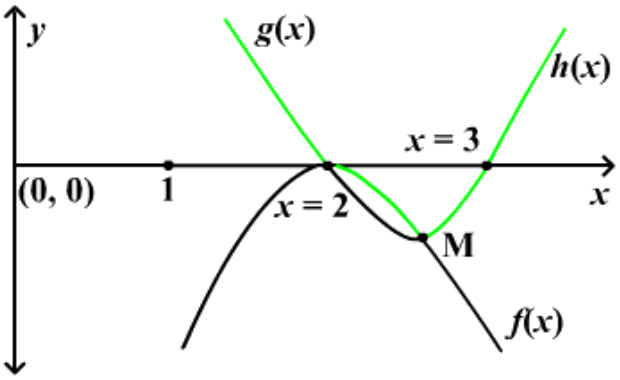
$\therefore g(x) = (x-2)(x-3)$



Let the abscissa of point M be m.

$$h(x) = \max(f(x), g(x)) = \begin{cases} g(x), & x < 2 \\ f(x), & 2 \le x \le m \\ g(x), & x > m \end{cases}$$

$$= \begin{cases} (x-2)(x-3), & x < 2 \\ -(x-2)^2, & 2 \le x \le m \\ (x-2)(x-3), & x > m \end{cases}$$



We can see from the graph that the minimum value of $h(x)$ is at point M.

M is the point of intersection of the curves $f(x)$ and $g(x)$ other than (2, 0).

The abscissa of M will be the root of the equation, $f(x) - g(x) = 0$ other than $x = 2$.

$\therefore f(x) - g(x) = 0$

$\therefore -(x-2)^2 - (x-2)(x-3) = 0$

$\therefore (x-2)^2 + (x-2)(x-3) = 0$

$\therefore (x-2)[(x-2) + (x-3)] = 0$

$\therefore (x-2)(2x-5) = 0$

$$\therefore x = 2, \frac{5}{2}$$

$$\therefore m = \frac{5}{2}$$

Hence, option 4.

Discuss the solution with Testfunda users.

Solution #22: (01-Oct-09)

"Poltergeist" is a 'ghost' or an 'apparition'. The relationship between the words is synonymous.
"Balderdash" means 'nonsense'.
"Moonshine" means 'nonsense'.
"Alacrity" means 'alertness'
"Avidity" means 'ardent desire or craving; eagerness'
"Riposte" means 'reply' or 'retort'
Therefore, "moonshine" is the only option which is in a synonymous relationship with "balderdash".
Hence, the correct answer is option 1.

Discuss the solution with Testfunda users.

Solution #23: (02-Oct-09)

Consider values of $f(x)$ for different values of x.

x	$\left[\frac{x}{5}\right]$	$x - 5\left[\frac{x}{5}\right]$
1	0	1
2	0	2
3	0	3
4	0	4
5	1	0
6, 7, 8, 9	1	1, 2, 3, 4
10, 11, 12, 13, 14	2	0, 1, 2, 3, 4

Consider values of $g(y)$ for different values of y.

y	$\left[\frac{y}{3}\right]$	$y - 3\left[\frac{y}{3}\right]$
1	0	1
2	0	2
3	1	0
4, 5	1	1, 2
6, 7, 8	2	0, 1, 2
9, 10, 11	3	0, 1, 2

∴ For different natural numbers x, $f(x)$ can take values 0, 1, 2, 3, 4 only.
Also, for different natural numbers y, $g(y)$ can take values 0, 1, 2 only.

Hence the product $f(x) \times g(y)$ can take values 0, 1, 6 and 8, but it can never take the value 12.

Hence, option 5.

Discuss the solution with Testfunda users.

Solution #24: (03-Oct-09)

"Turbid" is generally used in reference to a liquid and means 'cloudy or opaque'; "turgid" means 'swollen' and is the correct word here. Therefore, options 2 and 5 are eliminated.
"Exceptionable" means 'open to objection'; "exceptional" means 'excellent'. The actors performance was "exceptional". Therefore, option 3 is eliminated.
A "fawn" is 'a young deer, and a light brown colour'; a faun is a Roman deity that is part man, part goat. In this case, the animal was light brown in colour.
"Unsociable" means 'not enjoying the company of or engaging in activities with others'; insocial is not a word.
"Venal" means 'associated with bribery; corruptible'; 'venial', is used in Christian theology in reference 'to a minor sin'.
Hence, the correct answer is option 4.

Discuss the solution with Testfunda users.

Solution #25: (04-Oct-09)

Since a, b, c, p, q and r are all distinct real numbers, therefore, AM > GM

As a and p are distinct real numbers, therefore, a^2 and p^2 are also distinct real numbers.

$$\frac{a^2+p^2}{2} > \sqrt{a^2p^2} \qquad \ldots[\because \text{AM} > \text{GM}]$$

$\therefore a^2 + p^2 > 2ap$ ... (i)

Similarly, $b^2 + q^2 > 2bq$ ... (ii)

And, $c^2 + r^2 > 2cr$ ... (iii)

(i) + (ii) + (iii) gives,

$a^2 + p^2 + b^2 + q^2 + c^2 + r^2 > 2ap + 2bq + 2cr$

$\therefore (a^2 + b^2 + c^2) + (p^2 + q^2 + r^2) > 2ap + 2bq + 2cr$

$\therefore 101 + 101 > 2ap + 2bq + 2cr$

$\therefore 202 > 2(ap + bq + cr)$

$\therefore ap + bq + cr < 101$

Hence, option 2.

Discuss the solution with Testfunda users.

Solution #26: (05-Oct-09)

Option 1 strengthens the argument by linking the earlier cause of happiness (education and income) to height. This makes height (almost) responsible for income, education, and happiness as well.
Option 3 is tangential to the main argument. It does not bring height into the picture.
Option 2 talks about the very tallest people whereas the paragraph talks about the taller ones. This changes the context under consideration.
Option 4 brings in a new element- 'height tolerance' which, is ambiguous- tolerance by whom? The essence of the paragraph is circumvented here.
Option 5 directly negates a key element of the argument- that taller men experience more positive emotions.
Hence, the correct answer is option 5.

Discuss the solution with Testfunda users.

Solution #27: (06-Oct-09)

Consider the given inequality,

$A - B \geq C$

$$\therefore 3^{4x^2 - 10x + 3} - 2\left(15^{2x^2 - 5x + 1}\right) \geq 5^{4x^2 - 10x + 2}$$

$$\therefore 3^3 \times 3^{2(2x^2 - 5x)} - 2 \times 15^1 \times 15^{2x^2 - 5x} - 5^2 \times 5^{2(2x^2 - 4x)} \geq 0$$

$$\therefore 27 \times 3^{2(2x^2 - 5x)} - 30 \times 15^{2x^2 - 5x} - 25 \times 5^{2(2x^2 - 4x)} \geq 0$$

Let $p = 3^{2x^2 - 5x}$ and $q = 5^{2x^2 - 5x}$

$$\therefore 27 \times 3^{2(2x^2 - 5x)} - 30 \times 15^{2x^2 - 5x} - 25 \times 5^{2(2x^2 - 4x)}$$

$= 27p^2 - 30pq - 25q^2$

$\therefore 27p^2 - 30pq - 25q^2 \geq 0$

$$\frac{27p^2 - 30pq - 25q^2}{q^2} \geq 0 \qquad \ldots(\because q^2 > 0)$$

$$27\left(\frac{p}{q}\right)^2 - 30\left(\frac{p}{q}\right) - 25 \geq 0$$

Let $\frac{p}{q} = n$

$\because p, q > 0$, therefore, $n > 0$

$\therefore 27n^2 - 30n - 25 \geq 0$

$\therefore 27n^2 + 15n - 45n - 25 \geq 0$

$3n(9n + 5) - 5(9n + 5) \geq 0$

$(3n - 5)(9n + 5) \geq 0$

$\therefore$ Either $(3n - 5) \leq 0$ and $(9n + 5) \leq 0$ or $(3n - 5) \geq 0$ and $(9n + 5) \geq 0$

Case 1: $(3n - 5) \leq 0$ and $(9n + 5) \leq 0$

$$\therefore n \leq \frac{5}{3} \text{ and } n \leq -\frac{5}{9}$$

$$\therefore n \leq -\frac{5}{9}$$

This case is inadmissible as $n > 0$.

Case 2: $(3n - 5) \geq 0$ and $(9n + 5) \geq 0$

$$\therefore n \geq \frac{5}{3} \text{ and } n \geq -\frac{5}{9}$$

$$\therefore n \geq \frac{5}{3}$$

$$\therefore \frac{p}{q} \geq \frac{5}{3}$$

$$\left(\frac{3}{5}\right)^{2x^2 - 5x} \geq \left(\frac{3}{5}\right)^{-1}$$

$$\therefore 2x^2 - 5x \leq -1 \qquad \ldots\left(\because \frac{3}{5} < 1\right)$$

$\therefore 2x^2 - 5x + 1 \leq 0$

$$\therefore x \in \left[\frac{5 - \sqrt{17}}{4}, \frac{5 + \sqrt{17}}{4}\right]$$

Hence, option 2.

Discuss the solution with Testfunda users.

Solution #28: (07-Oct-09)

The apparent paradox is that in spite of there being several b-schools their demand is increasing (even with higher fees – price/value in the paragraph).
Option 1 does not resolve this apparent paradox.
Option 2 is applicable to only 'some of the b-schools' hence the general increase in demand is not resolved.
Option 4 may account for the increase in fees, but not the increase in demand.
Option 5 talks about 'graduates' – rather vague as the issue of management education/management graduates needs to be addressed. Option 3 resolves the paradox by giving a reason for people to rush to the B-schools even though costly as the corporate rewards them later.
Hence, the correct answer is option 3.

Discuss the solution with Testfunda users.

Solution #29: (08-Oct-09)

$\log_{(2x+7)} x^2 < \log_{(2x+7)} 3 + \log_{(2x+7)} (x+6)$

$\log_{(2x+7)} x^2 < \log_{(2x+7)} (3x+18)$ $\quad \ldots (\because \log a + \log b = \log ab)$

$\therefore \dfrac{\log x^2}{\log(2x+7)} < \dfrac{\log(3x+18)}{\log(2x+7)}$

We have to consider two cases here.

Case 1:

$2x + 7 > 1$ i.e. $x > -3$ ... (i)

In this case, from the given inequality we have

$x^2 < 3x + 18$

$x^2 - 3x - 18 < 0$

$(x + 3)(x - 6) < 0$

$\therefore -3 < x < 6$ ... (ii)

From (i) and (ii), we have

$x \in (-3, 6)$ ... (iii)

Case 2:

$0 < 2x + 7 < 1$

$\therefore -\dfrac{7}{2} < x < -3$ ... (iv)

In this case, from the given inequality we have

$x^2 > 3x + 18$

$\therefore x^2 - 3x - 18 > 0$

$(x + 3)(x - 6) > 0$

$\therefore x < -3$ or $x > 6$

$\therefore x \in (-\infty, -3) \cup (6, \infty)$ ... (v)

From (iv) and (v), we have

$$x \in \left(-\frac{7}{2}, -3\right) \qquad \ldots (vi)$$

Finally, from (iii) and (vi), we have

$$x \in \left(-\frac{7}{2}, -3\right) \cup (-3, 6)$$

But x cannot be 0 as log 0 and consequently P is not defined.

Therefore,

$$x \in \left(-\frac{7}{2}, -3\right) \cup (-3, 6)$$

and $x \neq 0$

Hence, option 5.

Discuss the solution with Testfunda users.

Solution #30: (09-Oct-09)

Option 1 helps to support the findings that women 'not only earn less but the gap grows over time.' The out of the work force women pull down the average (total earning). The gap grows over time because more of them are dropping out of work force. Option 2 and 3 are skewed in favour of women rather than men and may help to weaken the argument rather than support it. Options 4 does nothing to weaken or strengthen the argument. 75% in option 5 will not impact the average (mean). It may, however, weaken the argument considering it may be a skewed sample data.
Hence, the correct answer is option 1.

Discuss the solution with Testfunda users.

Solution #31: (10-Oct-09)

By definition,

$$f_1(x) = f_0(f_0(x)) = f_0\left(\frac{1}{1-x}\right) = \frac{1}{1-\left(\frac{1}{1-x}\right)} = \frac{1-x}{-x}$$

$$f_2(x) = f_0(f_1(x)) = f_0\left(\frac{1-x}{-x}\right) = \frac{1}{1-\left(\frac{1-x}{-x}\right)} = x$$

and $f_3(x) = f_0(f_2(x)) = f_0(x)$

Since $f_3(x) = f_0(x)$, we can conclude that $f_n(x) = f_k(x)$, where k is the remainder obtained when n is divided by 3.

$\therefore f_{2009}(2009) = f_2(2009) = 2009$

Hence, option 2.

Discuss the solution with Testfunda users.

Solution #32: (11-Oct-09)

Option 3 is not assumed - as cancer being less or more life threatening – the study merely indicates there may be a relation.
Option 5 talks about more research whereas the question is related to this particular research.
We are left three options, which are more difficult to eliminate from.
Option 4 is tangential to the conclusion of the study - the converse could be true - that cancer makes patients more susceptible to depression - quite possible given the prognosis that a cancer patient may have.
Option 1 is a conclusion of the study, and not an assumption. Moreover, it talks only about diagnosis, and not about symptoms. The study is broader in its scope to include all those with psychological distress.
The study concludes that there is a need to screen cancer patients. The relation between psychological distress and death in cancer patients has to be proved true for the authenticity of the study. If all other factors affecting the survival (of cancer patients) were taken into consideration, the link between psychological distress and death becomes obvious because of the death rates.
Hence, the correct answer is option 2.

Discuss the solution with Testfunda users.

Solution #33: (12-Oct-09)

Since A is a power of a prime number, all its factors will be powers of the same prime number.

Thus, the factors of A are 1, P, P^2, P^3, ..., P^N.

X is the product of all positive integral factors of A.

$\therefore X = 1 \times P \times P^2 \times P^3 \times \ldots \times P^N$
$= P^{(1 + 2 + 3 + \ldots + N)}$

$$= P^{\frac{N(N+1)}{2}}$$

Thus,

$$\log X = \log P^{\left[\frac{N(N+1)}{2}\right]}$$

$$= \left[\frac{N(N+1)}{2}\right] \log P$$

$$\therefore \frac{\log X}{\log P} = \frac{N(N+1)}{2}$$

Now, among the options, only option 2 gives a positive integer value of N.

Hence, option 2.

Discuss the solution with Testfunda users.

Solution #34: (13-Oct-09)

The argument to be undermined is "innocent people should not be watched". This assumes that innocent people are being watched or there is an intention to watch innocent people. (Do not misinterpret it as 'innocent people coming in view' of the cameras – watch has a different significance). Option 4 states that there is no intention to watch the innocent people; the cameras are installed with an intention to observe criminals and not innocent people. None of the other options deal with the issue of 'innocent people being watched or not watched'.
Hence, the answer is option 4.

Discuss the solution with Testfunda users.

Solution #35: (14-Oct-09)

Let $n = 10000$.

$\therefore X = n(n+1)(n+2)(n+3) + 1$

$= (n^2 + 3n)(n^2 + 3n + 2) + 1$

$= (n^2 + 3n)^2 + 2(n^2 + 3n) + 1$

$= (n^2 + 3n + 1)^2$

Substituting the value of n we get,

$X = (10000^2 + 30000 + 1)^2$

$= (100030001)^2$

$= Y^2$

$\therefore Y = 100030001$

Hence, option 5.

Discuss the solution with Testfunda users.

Solution #36: (15-Oct-09)

This paragraph seems to have been written in a somewhat sarcastic tone. However, the conclusion must still follow from what is given in the passage.
Options 1 and 4 cannot be concluded as these points go beyond the scope of what the passage is talking about. Option 1 is the opposite of what has been discussed in the passage - the rights of the husband with regard to his wife. Option 4 goes beyond male rights to conclude about marriage - which cannot be done without looking at the wife's rights, and marriage in a holistic view.
Option 3 could have a conclusion only without the sarcastic tone. Moreover, it is quite generic.
Option 5 is ruled out as there is no mention of a letter being a legal document.
Option 2 is the most logical conclusion as the main argument dealt with in the passage is that the husband has the right to read his wife's mail as he has legal ownership of her and her possessions.
Hence, the correct answer is option 2.

Discuss the solution with Testfunda users.

Solution #37: (16-Oct-09)

$D = x^3 + y^3 - (x - y)(x^2 + 4y^2)$

$\therefore D = x^3 + y^3 - x^3 - 4xy^2 + x^2y + 4y^3$

$\therefore D = y[5y^2 - 4xy + x^2]$

$\therefore D = y[x^2 - 4xy + 4y^2 + y^2]$

$\therefore D = y[(x - 2y)^2 + y^2]$

y, $(x - 2y)^2$ and y^2 are all positive.

$\therefore D$ is positive.

Hence, option 1.

Discuss the solution with Testfunda users.

Solution #38: (17-Oct-09)

"Who's" is a contraction of 'who is' or 'who has', while "whose" is the possessive, used in questions such as whose is this? and whose turn is it? "Whose" is the correct word contextually. Therefore, options 1 and 5 can be eliminated.
"Wreath" (n and v) with no '*e*' at the end means 'arrangement of flowers'. Hence the plural wreaths; while "wreathe" with an *'e*' is a verb meaning 'envelop, surround, or encircle'.
"Wreaths" is the correct word contextually. Therefore, option 4 can be eliminated.
"Ironic" implies an attempt 'to be amusing or provocative by saying usually the opposite of what is meant': made the ironic observation that the government could always be trusted. "Sardonic" implies 'scorn, mockery, or derision that is manifested by either verbal or facial expression': surveyed the scene with a sardonic smile. Therefore, option 2 can be eliminated.
"Uninterested" means 'to find something boring or dull'. "Disinterested" means 'impartial'.
"Comprise" is a verb meaning 'to consist of or be composed of'. "Compose" means 'to make up the constituent parts of'. If we use "comprises" the sentence should read: " ... division of India comprises 28 states and ..."
Hence, the correct answer is option 3.

Discuss the solution with Testfunda users.

Solution #39: (18-Oct-09)

2686 = 686 + 1500 + 500

∴ For simplicity let a = 686, b = 1500 and c = 500

∴ $X = (a + b + c)^3 - a^3 - b^3 - c^3$

$= [(a + b + c)^3 - a^3] - [b^3 + c^3]$

$= (a + b + c - a)[(a + b + c)^2 + a(a + b + c) + a^2] - (b + c)[b^2 - bc + c^2]$

$= (b + c)\{[(a + b + c)^2 - b^2] + a(a + c) + ab + bc + (a^2 - c^2)\}$

$= (b + c)\{(a + b + c + b)(a + b + c - b) + a(a + c) + b(a + c) + (a + c)(a - c)$

$= (b + c)(a + c)[a + c + 2b + a + b + a - c]$

$= 3(a + b)(b + c)(c + a)$

∴ 3, (686 + 500) = 1186, (1500 + 686) = 2186 and (1500 + 500) = 2000 are factors of X.

Hence, option 5.

Discuss the solution with Testfunda users.

Solution #40: (19-Oct-09)

A “perquisite” is a special right or privilege enjoyed as a result of one's position; “prerequisite” is something that is required as a prior condition for something else. “Perquisite” is the correct word here. Therefore, options 2 and 5 are eliminated.
“Perspicuous” means 'expressing things clearly' and is the apt word here while “perspicacious” means 'having a ready understanding of things'. Therefore, option 3 is eliminated.
“Principal” in this context means ‘a company represented by a sales person’. “Principle” means ‘an accepted rule of action or conduct’ and is inappropriate in this context.
“Proscribe” is a rather formal word meaning 'condemn or forbid' and is the correct word here, whereas ‘prescribe’ means either 'issue a medical prescription' or 'recommend with authority'. Therefore, option 1 is eliminated.
Do not confuse “regretful” which means 'feeling or showing regret', with “regrettable” which means 'giving rise to regret; undesirable'. “Regrettable” is apt in this context.
Hence, the correct answer is option 4.

Discuss the solution with Testfunda users.

Solution #41: (20-Oct-09)

Since *X*, *Y* and *Z* are in Harmonic Progression,

∴ *Y* is the harmonic mean of *X* and *Z*.

$$\therefore \frac{2}{Y} = \frac{1}{X} + \frac{1}{Z}$$

$$\therefore Y = \frac{2XZ}{X+Z}$$

$$\text{Also, AM} > \text{HM, or } \frac{X+Z}{2} > \frac{2XZ}{X+Z} = Y$$

$$\therefore \frac{X+Z}{Y} > 2$$

Hence, option 5.

Discuss the solution with Testfunda users.

Solution #42: (21-Oct-09)

The passage talks about strict laws related to certain kinds of associations. However, option 1 has the issue that it talks about "amusement, etc" in general, and not necessarily through associations.
Option 2 takes away the entire responsibility of the ceremonies from the family - for which there is no justification in the passage.
There were strict laws on associations other than funeral colleges - which could have resulted in a lack of places for people to meet and interact. However, "*raison d'etre*" (the main reason for existence) allows us to eliminate it.
By emulating the practices of the funeral colleges Christianity managed to hold meetings and keep together as a community. The option is vague on how far beyond, which lets us conclude it since if they survived the second and third centuries (with some degree of structure), they would have survived for some at least beyond. This makes option 4 correct.
There is very little support for either "socio-political", or "socio-religious" in the passage, allowing us to eliminate it.
Hence, the correct answer is option 4.

Discuss the solution with Testfunda users.

Solution #43: (22-Oct-09)

The name of soldiers can have at most 3 characters, and it must include at least one A.

Case 1: The name of the soldier is one character long.
The only name possible is A.
∴ Only 1 soldier can have a name that is one character long.

Case 2: The name of the soldier is 2 characters long.
Total number of two character names = $26 \times 26 = 26^2$
Total number of two character names without the letter A = $25 \times 25 = 25^2$
Total number of two character names with A = $26^2 - 25^2 = 51$
∴ 51 soldiers can have names that are two characters long.

Case 3: The name of the soldier is three characters long.
Proceeding in the same way as case 2,
Total number of three character names with either 1, 2 or 3 A's = $26^3 - 25^3 = 1951$
∴ 1951 soldiers can have names that are three characters long.
∴ Total number of unique names satisfying the conditions given in the question
= Total number of names from **case 1** + **case 2** + **case 3**
= 1 + 51 + 1951
= 2003

Hence, option 1.

Note: It is not mentioned in the question that the name of a soldier cannot be "Ari". Therefore, we can assume that the name of a soldier can be the same as that of the King.

Discuss the solution with Testfunda users.

Solution #44 (23-Oct-09)

"Apposite" means relevant or appropriate while the antonym to this word is "opposite".
While referring to a person's hairline, the word receding is more apt.
"Rigour" means strictness or harshness. The medical term for stiffness after death is "Rigor" mortis.
An illness "weakens" a person while a test would be conducted to find out what "ailed" a person's health.
A "lien" means the right to hold or sell a debtor's property as payment or security against a debt.
Hence, the correct answer is option 4.

Discuss the solution with Testfunda users.

Solution #45: (24-Oct-09)

Consider the given expression,

$$x_n = \frac{3n}{2} + \frac{1}{3n + \frac{1}{3n + \frac{1}{3n + \cdots}}}$$

Therefore,

$$x_n - \frac{3n}{2} = \frac{1}{3n + \frac{1}{3n + \frac{1}{3n + \cdots}}}$$

$$\therefore \left(x_n - \frac{3n}{2}\right) = \frac{1}{\left(3n + x_n - \frac{3n}{2}\right)}$$

$$\therefore \left(x_n - \frac{3n}{2}\right) = \frac{1}{\left(x_n + \frac{3n}{2}\right)}$$

$$\therefore \left(x_n - \frac{3n}{2}\right)\left(x_n + \frac{3n}{2}\right) = 1$$

$$\therefore x_n^2 = 1 + \frac{9n^2}{4}$$

$$\therefore y_n = 1 + \frac{9n^2}{4}$$

$\therefore y_1 + y_2 + \ldots + y_8$

$$= \sum_{n=1}^{8} y_n$$

$$= \sum_{n=1}^{8} \left(1 + \frac{9n^2}{4}\right)$$

$$= \sum_{n=1}^{8} 1 + \sum_{n=1}^{8} \frac{9}{-}$$

$$= 8 + \frac{9}{4} \times \sum_{n=1}^{8} n^2$$

$$= 8 + \frac{9}{4} \times (1^2 + 2^2 + \cdots + 8^2)$$

$$= 8 + \frac{9}{4} \times \frac{(8 \times 9 \times 17)}{6} = 467$$

Hence, option 4.

Discuss the solution with Testfunda users.

Solution #46: (25-Oct-09)

The parents have not been adopted. Instead they are adopting children so they are 'adoptive'.
If something precedes *x,* it comes before *x*. Here, the word is proceed which is "to continue or advance".
Born mean "brought forth by birth" while borne means, "to hold up; support as well as to bring forth (young); give birth to". It is not possible to give birth to taunts so borne is a better fit than born.
Alternative has to do more with "choice" and alternate has more to do with "succession". Alternate would be to "take turns" whereas alternative would be "the other choice". Thus, alternative is our word here.
In the paragraph, the society does not seem to appreciate the couple's adoption. Hence, they do not think it as an act of bravery but more as an act of bravado which means "boldness or audacity".
Hence, the correct answer is option 1.

Discuss the solution with Testfunda users.

Solution #47: (26-Oct-09)

$$\text{Given}, K = \frac{x^4 + \frac{1}{x^4} + 1}{x^2 + \frac{1}{x^2} + 1}$$

$$\therefore K = \frac{x^8 + x^4 + 1}{x^4 + x^2 + 1} \times \frac{x^2}{x^4}$$

$$\therefore K = \frac{1}{x^2} \times \frac{x^8 + 2x^4 + 1 - x^4}{x^4 + x^2 + 1}$$

$$\therefore K = \frac{1}{x^2} \times \frac{(x^4 + 1)^2 - x^4}{x^4 + x^2 + 1}$$

$$\therefore K = \frac{1}{x^2} \times \frac{(x^4 + x^2 + 1)(x^4 + 1 - x^2)}{(x^4 + x^2 + 1)}$$

$$\therefore K = x^2 - 1 + \frac{1}{x^2}$$

$$\therefore K = \left(x + \frac{1}{x}\right)^2 - 1 - 2$$

$$\therefore K = \left(x + \frac{1}{x}\right)^2 - 3$$

Clearly the maximum value of K would be ∞.

K is minimum when $\left(x+\frac{1}{x}\right)^2$ is minimum.

$\therefore K$ is minimum when $\left(x+\frac{1}{x}\right)$ is minimum.

$x \times \frac{1}{x} = 1 = \text{constant}$

$\therefore \left(x+\frac{1}{x}\right)$ is minimum when $x = \frac{1}{x}$

$\therefore \left(x+\frac{1}{x}\right)$ is minimum when $x^2 = 1$

$\therefore \left(x+\frac{1}{x}\right)$ is minimum when $x = \pm 1$

For $x = 1, x+\frac{1}{x} = 2$

For $x = -1, x+\frac{1}{x} = -2$

For $x = -1, x+\frac{1}{x}$ is minimum.

Also, it is given that $x < 0$.

Therefore,

$K_{\min} = (2)^2 - 3 = 1$

$\therefore K \in [1, \infty)$

Hence, option 4.

Discuss the solution with Testfunda users.

Solution #48: (27-Oct-09)

To inflict a blow indicates that someone (doer) has "caused or meted out a blow". One is afflicted (troubled, make distressed or upset) "by maladies or illnesses".
Allude is "to refer indirectly to something". To elude is "to escape or avoid". The lady used to allude or refer to her imagined illnesses.
Unsufferable is used for persons or their behaviour (which is intolerable) and not for illnesses. Insufferable is the right word here, as it means "difficult or impossible to endure, intolerable".
The fourth word is forebodings (future misfortunes) as the sentence ends with 'about future health concerns'. To forbid is "to command someone not to do something".
Excess is "more" whereas access, our last word here, is "right to use of (information)".
Hence, the correct answer is option 2.

Discuss the solution with Testfunda users.

Solution #49: (28-Oct-09)

Let $N = 1! \times 2! \times 3! \times \ldots \times 9! \times 10!$

We know that the power of a prime p in $n!$ can be determined by the formula

$$\left[\frac{n}{p}\right] + \left[\frac{n}{p^2}\right] + \left[\frac{n}{p^3}\right] + \cdots$$

Using it for $n = 1, 2, 3, \ldots 10$ and $p = 2, 3, 5$ and 7 in the formula we get,

$1! \times 2! \times 3! \times \ldots \times 9! \times 10! = 2^{37} \times 3^{17} \times 5^{7} \times 7^{4}$

Any divisor of N which is perfect square will be of the form $2^{2a} \times 3^{2b} \times 5^{2c} \times 7^{2d}$.

$\therefore a$ can take the values 0, 1, 2, … 19 = 20 values.

Similarly b, c and d will take 9, 4 and 3 values, respectively.

$\therefore$ Total number of divisors of N that are perfect squares = $20 \times 9 \times 4 \times 3 = 2160$.

Hence, option 2.

Discuss the solution with Testfunda users.

Solution #50: (29-Oct-09)

Backward here relates to conservative or orthodox or more correctly "not progressive". Therefore, it is our first word for this paragraph. Backwards means "towards the back" or 'in a reverse order'.
Antidotes are "cures or remedies" and the word does not apply here. Anecdotes are "witty tales or stories". His anecdotes could blow away people's gloom if they were annoyed or feeling bad about something.
Aggravate is "to make worse" and is not suitable for this sentence.
One feels bad about someone behaving badly. Therefore, 'bad' is our fourth word.
Elicit is "to draw out" (laughter in this case). Illicit is "illegal".
Hence, the correct answer is option 4.

Discuss the solution with Testfunda users.

Solution #51: (30-Oct-09)

$x^2 - 18x - 1 = 2^y - 3^4$

$\therefore x^2 - 18x - 1 = 2^y - 81$

$\therefore x^2 - 18x + 80 = 2^y$

$\therefore (x - 8)(x - 10) = 2^y$

As RHS is a power of 2, hence both the terms of the LHS should also be powers of 2.

Since the terms on the left differ by 2, only (4, 2) and (−2, −4) can be the two numbers represented by $(x - 8)$ and $(x - 10)$.

For (4, 2) we get $x - 8 = 4$ or $x = 12$ and thus $y = 3$

For (−2, −4) we get $x - 8 = -2$ or $x = 6$ and thus $y = 3$

Thus (12, 3) and (6, 3) are the only two ordered pairs satisfying the conditions.

Hence, option 3.

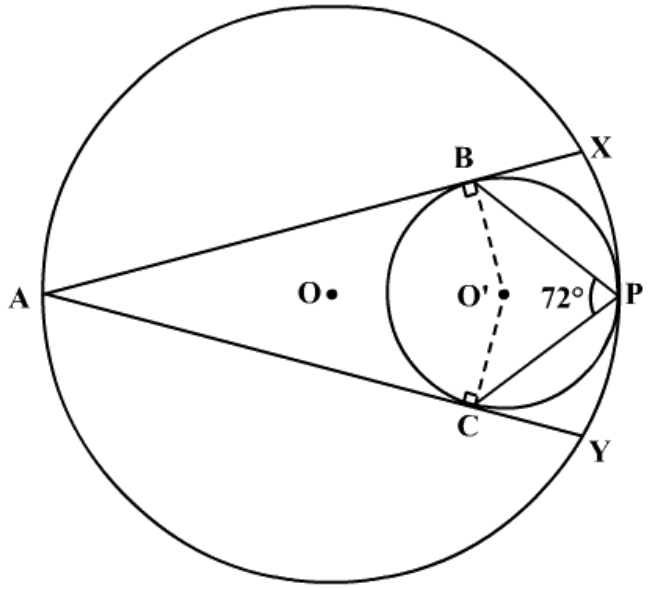
Discuss the solution with Testfunda users.

Solution #52: (31-Oct-09)

Sentences A and B have an agreement error. The phrase, 'all the facts' is plural and should take the verb 'are' in place of 'is'. Further, in B, the subject is process (singular) and therefore, the verb 'permit' should become 'permits'.
The error in sentence E may perhaps get a wee bit difficult to figure out. To understand it, we can condense the sentence, "… starting … from seven tenths … to ninety five hundredths of it." Preposition 'to' should replace preposition 'in' (the one that precedes 'ninety-five') in the sentence.
Hence, the correct answer is option 2.

Discuss the solution with Testfunda users.

Solution #53: (01-Nov-09)



∠BPC = 72°

∴ ∠BO'C = 144°

As AB and AC are tangents to the circle with centre O', ∠ABO' = ∠ACO' = 90°

∴ ∠BAC = 360° – (∠ABO' + ∠ACO' + ∠BO'C)

∴ ∠BAC = 36°

∴ ∠XAY = 36°

∴ ∠XPY = 144° …(opposite angles of cyclic quadrilateral are supplementary)

Hence, option 4.

Discuss the solution with Testfunda users.

Solution #54: (02-Nov-09)

Statement C has an error in parallelism. The elements of the sentence, "the sharp morning air, *interest in training,* the unexpected popping…" need to be parallel. We need to add an article (the) just before the word *interest* and *grotesque*.
All the other statements are grammatically correct.
Hence, the correct answer is option 3.

Discuss the solution with Testfunda users.

Solution #55: (03-Nov-09)

Consider the given inequality,

$$\left|3-\frac{|6x|}{4+|2x|}\right| \geq \frac{1}{4}$$

We know that $|xy| = |x|\,|y|$
$\therefore |6x| = |6||x| = 6|x|$

And,

$|2x| = |2||x| = 2|x|$

Therefore, the given inequality is,

$$\left|3-\frac{6|x|}{4+2|x|}\right| \geq \frac{1}{4}$$

$$\therefore \left|\frac{3(4+2|x|)-6|x|}{4+2|x|}\right| \geq \frac{1}{4}$$

$$\therefore \left|\frac{12}{4+2|x|}\right| \geq \frac{1}{4}$$

As,

$$\frac{12}{4+2|x|} > 0, \text{therefore, we can say that } \left|\frac{12}{4+2|x|}\right| = \frac{12}{4+2|x|}$$

$$\therefore \frac{12}{4+2|x|} \geq \frac{1}{4}$$

$\therefore 12 \times 4 \geq 4 + 2|x|$ …[$\because 4 + 2|x| > 0$]
$\therefore |x| \leq 22$
$\therefore -22 \leq x \leq 22$
$\therefore x$ can take 45 integer values.
Hence, option 4.

Discuss the solution with Testfunda users.

Solution #56: (04-Nov-09)

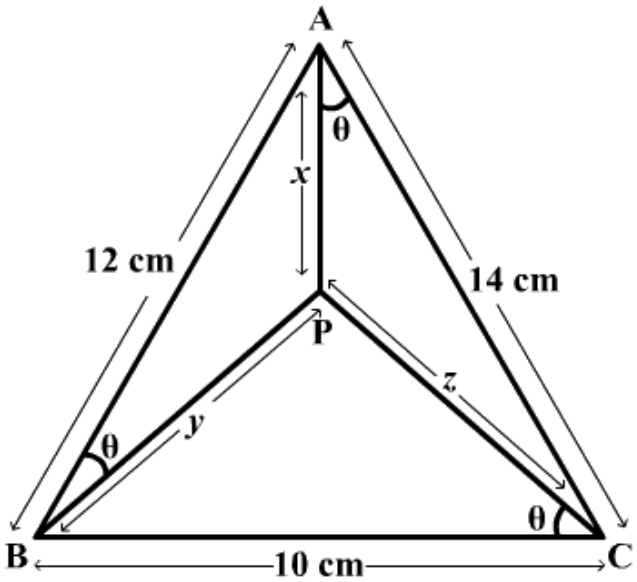
Grammatically, comprise is not immediately followed by a preposition "of". Therefore, the first word is "consists". We can eliminate options 1,3 and 5.
The author had 'self-belief' or 'confidence' and not "confidant"- which means one in whom secrets are confided.
Similar to "comprise", "despite" does not require a preposition immediately following it. Thus, we will use 'in spite'. Therefore, we can eliminate option 4.
Din is 'noise or commotion', dine means to 'to have dinner'. Our word is "dinning" - from din.
'Presently' means '**in** some time', when there is still some time left for something to happen or take place. Therefore, the correct word is "currently"- which means 'now'.
Hence, the correct answer is option 2.

Discuss the solution with Testfunda users.

Solution #57: (05-Nov-09)

Let the side length of AP, BP, CP be x, y and z, respectively.

The given data can be represented as follows,



Using Cosine Rule in ΔAPC,

$28x \times \cos\theta = 14^2 + x^2 - z^2$ ...(i)

Using Cosine rule in ΔABP,

we get $24y \times \cos\theta = 12^2 + y^2 - x^2$ ...(ii)

Similarly, using cosine rule in ΔBCP,

$20z \times \cos\theta = 10^2 + z^2 - y^2$ ...(iii)

Adding, equations (i), (ii) and (iii), we get,

$(28x + 24y + 20z)\cos\theta = 14^2 + 12^2 + 10^2$

$$\cos\theta = \frac{14^2 + 12^2 + 10^2}{28x + 24y + 20z} = \frac{440}{28x + 24y + 20z}$$

$$= \frac{110}{7x + 6y + 5z}$$

Also,

Area of ΔABC = Area of ΔAPC + Area of ΔABP + Area of ΔBCP

$$= \frac{1}{2} \times 14x \times \sin\theta + \frac{1}{2} \times 12y \times \sin\theta + \frac{1}{2} \times 10z \times \sin\theta$$

$$= \frac{1}{2} \times \sin\theta \times (14x + 12y + 10z)$$

$$\therefore \sin\theta = \frac{(\text{Area of } \Delta ABC)}{7x + 6y + 5z}$$

Since, we have the lengths of the three sides of ΔABC, we can calculate its area using the Heron's formula,

Semiperimeter of ΔABC = $(a + b + c)/2 = (10 + 12 + 14)/2 = 18$

$$\text{Area of } \Delta ABC = \sqrt{s(s-a)(s-b)(s-c)}$$

$$= \sqrt{18 \times 8 \times 4 \times 6} = 24\sqrt{6}$$

$$\therefore \sin\theta = \frac{24\sqrt{6}}{7x + 6y + 5z}$$

$$\therefore \tan\theta = \frac{\sin\theta}{\cos\theta} = \frac{24\sqrt{6}}{110} = \frac{12\sqrt{6}}{55}$$

Hence, option 4.

Discuss the solution with Testfunda users.

Solution #58: (06-Nov-09)

There are 2 major clues. The first clue is 'series' of failures or troubles in George's life. The second clue comes from last 2 lines, which indicate a financial crisis of some sort. Thus, option 1 which combines both George's misfortune and the financial crisis is the best option.
Option 2 can be negated as it follows from the last line alone and not from the entire paragraph.
Options 4 and 5 can be negated as they are mildly negative while the general trend of the paragraph, calls for something which is strongly negative.
Option 3 is eliminated as it is contradictory to the given tone of the paragraph.
Hence, the correct answer is option 1.

Discuss the solution with Testfunda users.

Solution #59: (07-Nov-09)

By Wilson's theorem, a natural number $p > 1$ is a prime number iff $(p - 1)! + 1$ is divisible by p.

∴16! gives a remainder −1 on division by 17.

From the solution above we know that, n gives the same remainder as 31!/17 on division by 17.

$$\text{Also, } \frac{31!}{17} = 31 \times 30 \times 29 \times \ldots \times 18 \times 16 \times 15 \times \ldots \times 2 \times 1$$

$$= (17 + 14) \times (17 + 13) \times (17 + 12) \times \ldots (17 + 1) \times (16 \times 15 \times 14 \times \ldots \times 2 \times 1)$$

$$= (17 + 14) \times (17 + 13) \times (17 + 12) \times \ldots (17 + 1) \times 16!$$

∴ $(17 + 14) \times (17 + 13) \times (17 + 12) \times \ldots (17 + 1) \times 16!$ gives the same remainder as

$(14! \times 16!)$ on division by 17.

By Wilson's theorem we know that , 16! Gives remainder −1 on division by 17.

∴ $14! \times 15 \times 16$ gives remainder −1 on division by 17.

$14! \times 15 \times 16$ gives the same remainder as $14! \times -2 \times -1$ on division by 17.

∴ $14! \times 15 \times 16$ gives the same remainder as $14! \times 2$ on division by 17.

∴ $14! \times 2$ gives remainder −1 on division by 17.

∴ 14! will give remainder 8 on division by 17.

∴ $14! \times 16!$ will give remainder $8 \times -1 = -8$ on division by 17.

∴ $14! \times 16!$ will give remainder $17 - 8 = 9$ on division by 17.

∴ 31!/17 will give remainder 9 on division by 17.

∴ n will give remainder 9 on division by 17.

Hence, option 4.

Alternatively,

The question can be solved without using Wilson's theorem as follows.

We can rewrite the equation as

$$n = 31! + \frac{31!}{2} + \frac{31!}{3} + \cdots + \frac{31!}{30} + \frac{31!}{31}$$

Each term in the sum, except $\frac{31!}{17}$, is divisible by 17.

∴The remainder of n on division by 17 is same as

the remainder of $\frac{31!}{17}$ on division by 17.

Let this remainder be R.

$$\frac{31!}{17} = 31 \times 30 \times 29 \times 28 \times \ldots \times 18 \times 16 \times 15 \times 14 \ldots \times 2 \times 1$$

$$= (17+14)(17+13)\ldots(17+1)(17-1)\ldots(17-13)(17-14) \times 2 \times 1$$

$$= (17^2 - 14^2)(17^2 - 13^2)(17^2 - 12^2)\ldots(17^2 - 1^2) \times 2 \times 1$$

All the terms of this expression except the last term are divisible by 17.

∴ R is the remainder when $(14 \times 13 \times 12 \times \ldots \times 2 \times 1)^2 \times 2 \times 1$ is divided by 17.

$(14!)^2 \times 2 = ((14 \times 11)(8 \times 2)(13 \times 4)(12 \times 7)(10 \times 5)(6 \times 3)(9 \times 1))^2 \times 2$

$= (154 \times 16 \times 52 \times 84 \times 50 \times 18)^2 \times 81 \times 2$

We can see that all the terms in this expression, except 81×2, are of the form $17k \pm 1$

∴ R will be the remainder when 81×2 is divided by 17.

∴ $R = 9$

Hence, option 4.

Discuss the solution with Testfunda users.

Solution #60: (08-Nov-09)

"Sensuous" implies 'gratification of the senses for the sake of aesthetic pleasure'; the sensuous delights of great music. "Sensual" tends to imply 'the gratification of the senses or the indulgence of the physical appetites as ends in themselves'. "Sensual" would be apt in the context of the sentence. Therefore, options 2 and 5 are eliminated.
" Luxurious" suggests the 'providing of or indulgence of sensuous pleasure inducing bodily ease and languor'; a luxurious hotel. "Voluptuous" implies 'more strongly abandonment especially to sensual pleasure'; a voluptuous feast. Therefore, option 1 is eliminated since "voluptuous" is the apt word in this context.
"Veracious" is 'truthful, honest or accurate'. "Voracious" means 'ravenous or having a huge appetite' and is the correct word in this context.
'Ternary' is 'based on the number three'. 'Tertiary' means 'third in place, order, degree, or rank'. Here, we want to express a number system based on the number three. Therefore, option 3 is eliminated.
"Premier" (adj) means 'first in rank' and is the correct word contextually. "Premiere" as a noun means 'first performance'. "Premiere" is not an adjective.
Hence, the correct answer is option 4.

Discuss the solution with Testfunda users.

Solution #61: (09-Sep-09)

The line $3x - 2y = 0$ passes through origin.

Let k be the x-coordinate of the other end of the diameter.

$\therefore$ The other end of the diameter is $(k, 3k/2)$, where k is a real number.

As, the center is the midpoint of the diameter,

The coordinates of the center are $\left(\frac{k}{2}, \frac{3k}{4}\right)$.

All the radii of a circle are equal, we will use it to find the value of k and thus center and hence radius of the circle.

Using distance formula,

$$\sqrt{\left(\frac{k}{2}-0\right)^2+\left(\frac{3k}{4}-0\right)^2}=\sqrt{\left(\frac{k}{2}-\frac{5}{2}\right)^2+\left(\frac{3k}{4}-\frac{1}{2}\right)^2}$$

Squaring and solving we have

$$\left(\frac{3k}{4}\right)^2-\left(\frac{3k}{4}-\frac{1}{2}\right)^2=\left(\frac{k}{2}-\frac{5}{2}\right)^2-\left(\frac{k}{2}\right)^2$$

$$\frac{3k}{4}-\frac{1}{4}=\frac{25}{4}-\frac{5k}{2}$$

$$\frac{13k}{4}=\frac{26}{4}$$

$k = 2$

$$\text{Radius of the circle} = \sqrt{\left(\frac{k}{2} - 0\right)^2 + \left(\frac{3k}{4} - 0\right)^2}$$

$$= \sqrt{\left(\frac{2}{2}\right)^2 + \left(\frac{6}{4}\right)^2}$$

$$= \sqrt{1 + \frac{9}{4}} = \frac{\sqrt{13}}{2}$$

Hence, option 3.

Discuss the solution with Testfunda users.

Solution #62: (10-Nov-09)

"Discreet" (adj) 'wise, cautious and not saying anything which might cause trouble' and is the right word in this context. "Discrete" (adj) means 'constituting a separate entity'. Therefore, options 2 and 4 are eliminated.
"Expedient" means 'based on or marked by a concern for self-interest rather than principle'; "expeditious" means 'fast' and is the inappropriate word here. Therefore, option 1 is eliminated.
"Eminently" means 'very' and is the appropriate word contextually; 'imminently' means 'ready to take place'.
"Elect" through 'ballot' and "select" is 'by choice'. 'Select' is the correct word here as the Prime Minister 'selects' members of the cabinet.
Hence, the correct answer is option 3.

Discuss the solution with Testfunda users.

Solution #63: (11-Nov-09)

Consider the given series,

$$\frac{1}{(1\times 2)}+\frac{1}{(1\times 2)+(2\times 3)}+\frac{1}{(1\times 2)+(2\times 3)+(3\times 4)}+\cdots$$

Let T_n denote the n^{th} term of the given series.

$$T_m=\frac{1}{(1\times 2)+(2\times 3)+(3\times 4)+\cdots+m(m+1)}$$

$$=\frac{1}{\sum_{n=1}^{m} n(n+1)}$$

$$=\frac{1}{\sum_{n=1}^{m} (n^2+n)}$$

$$=\frac{1}{\left[\frac{m(m+1)(2m+1)}{6}\right]+\left[\frac{m(m+1)}{2}\right]}$$

$$=\frac{1}{\frac{m(m+1)}{6}(2m+1+3)}$$

$$=\frac{3}{m(m+1)(m+2)}$$

$$=\frac{3}{2}\left[\frac{1}{m(m+1)}-\frac{1}{(m+1)(m+2)}\right]$$

$$S_n=\sum_{m=1}^{\infty}\left(\frac{3}{2}\left[\frac{1}{m(m+1)}-\frac{1}{(m+1)(m+2)}\right]\right)$$

$$=\frac{3}{2}\left(\left[\frac{1}{2}-\frac{1}{6}\right]+\left[\frac{1}{6}-\frac{1}{12}\right]+\cdots\right)=\frac{3}{2}\left(\frac{1}{2}-0\right)=\frac{3}{4}$$

Hence, option 4.

Discuss the solution with Testfunda users.

Solution #64: (12-Nov-09)

'Books embedded in an imbricated fashion' means that the embedded books were regularly arranged in an overlapping style.
The books are extant and not extinct, that is, they exist and are not lost. Extent is range, degree or amount.
Diffident is shy or hesitant. The time or era was 'difficult' or tough.
Hanged, as a past tense and a past participle of hang, is used in the sense of "to put to death by hanging".
Hung is used in the sense of 'hung parliament' or 'a photograph was hung on the wall'. People who fought the injustices of their time would certainly be hardy, resilient or tough people.
Hardly means 'barely or to almost no degree'.
Hence, the answer is option 1.

Discuss the solution with Testfunda users.

Solution #65: (13-Nov-09)

Consider the given equation,

$$4x^2 + \frac{4x^2}{(2x+1)^2} = 15$$

$$\therefore (2x)^2 + \left(\frac{2x}{2x+1}\right)^2 = 15$$

$$\therefore (2x)^2 + \left(\frac{2x}{2x+1}\right)^2 - \left(2 \times 2x \times \frac{2x}{2x+1}\right) = 15 - \left(2 \times 2x \times \frac{2x}{2x+1}\right)$$

$$\therefore \left(2x - \frac{2x}{2x+1}\right)^2 = 15 - \left(2 \times 2x \times \frac{2x}{2x+1}\right)$$

$$\therefore \left(\frac{4x^2}{2x+1}\right)^2 = 15 - 2\left(\frac{4x^2}{2x+1}\right)$$

$$\therefore \left(\frac{4x^2}{2x+1}\right)^2 + 2\left(\frac{4x^2}{2x+1}\right) - 15 = 0$$

$$\text{Let } p = \frac{4x^2}{2x+1}$$

$\therefore$ We have, $p^2 + 2p - 15 = 0$

$\therefore (p - 3)(p + 5) = 0$

$\therefore p = 3$ or -5

Case 1: $p = 3$

$$\therefore p = \frac{4x^2}{2x+1} = 3$$

$\therefore 4x^2 - 6x - 3 = 0$

$$\therefore x = \frac{6 \pm \sqrt{36+48}}{2 \times 4} = \frac{3 \pm \sqrt{21}}{4}$$

Case 2: $p = -5$

$$\therefore \frac{4x^2}{2x+1} = -5$$

$\therefore 4x^2 + 10x + 5 = 0$

$$\therefore x = \frac{-10 \pm \sqrt{100-80}}{2 \times 4} = \frac{-5 \pm \sqrt{5}}{4}$$

$$\therefore x = \frac{3 \pm \sqrt{21}}{4} \text{ or } \frac{-5 \pm \sqrt{5}}{4}$$

$\frac{3+\sqrt{21}}{4}$ is the only non negative value of x.

$$x_{max} = \frac{3+\sqrt{21}}{4}$$

Hence, option 4.

Discuss the solution with Testfunda users.

Solution #66: (14-Nov-09)

Abet (A) is 'to approve, encourage, and support'. Betted is the past form of bet and does not suit the context of the sentence.
The police interrogate (question) criminals. Celebrities and like or candidates seeking employment are interviewed.
From the second sentence, if the robber kept to himself, it indicates that he may be reticent (unforthcoming, uncommunicative) instead of reluctant (hesitant).
Taut is tight and if he wasn't very communicative, he was tight-lipped or taut-lipped (A). Tout is 'to advertise, publicize or flaunt'.
Site is a place or location. To cite is to quote or allude to and hence is our final word for this paragraph.
Hence, the answer is option 3.

Discuss the solution with Testfunda users.

Solution #67: (15-Nov-09)

Consider the following inequality,

$$\left|\sqrt{m}-\sqrt{300}\right|<1$$

$$\therefore -1<\sqrt{m}-\sqrt{300}<1$$

$$\therefore \left(\sqrt{300}-1\right)<\sqrt{m}<\left(\sqrt{300}+1\right)$$

Squaring both sides we get ,

$$\left(300+1-2\sqrt{300}\right)<m<\left(300+1+2\sqrt{300}\right)$$

$(301 - 2 \times 17.3) < m < (301 + 2 \times 17.3)$

$\therefore 267 \le m \le 335$

$\therefore$ We get a total of $335 - 267 + 1 = 69$ values for m.

Hence, option 1.

Discuss the solution with Testfunda users.

Solution #68: (16-Nov-09)

Moribund means 'dying'. From the second sentence, if the psychopath was thrilled then he was reading with morbid (sinister or gruesome) interest.
Palate is 'roof of the mouth' whereas palette is the board on which a painter mixes colours or which he uses while painting.
Here, the peasant's (not the pheasant as the character commits homicides or human murders) palate was pierced.
Pour is used in the sense of pouring (rain or water or financial aid). Here 'pored' is to be used. It means to read intently.
Prosecute is to initiate civil or criminal proceedings against someone in a court of law. Persecute is to annoy or harass.
Hence, the answer is option 1.

Discuss the solution with Testfunda users.

Solution #69: (17-Nov-09)

Let A and B work on the project alone for x and y days respectively.

$\therefore$ They work together for $(13 - x - y)$ days.

A can finish the work alone in 12 days.

$$\therefore \text{A's one day work} = \frac{1}{12}$$

$$\therefore \text{In } x \text{ days A can complete } \frac{x}{12} \text{th of the work.}$$

B can finish the work alone in 18 days.

$$\therefore \text{B's one day work} = \frac{1}{18}$$

$$\therefore \text{In } y \text{ days B can complete } \frac{y}{18} \text{th of the work.}$$

When they work together, their efficiency is reduced by 20%, so they work at 80% of their efficiency.

$$\therefore 1 \text{ day's work, when A and B work together} = 0.8\left(\frac{1}{12} + \frac{1}{18}\right) = \frac{1}{9}$$

$$\therefore \text{In } (13 - x - y) \text{days A and B together finish } \frac{13 - x - y}{9} \text{th of the work.}$$

$$\therefore \frac{x}{12} + \frac{y}{18} + \frac{13 - x - y}{9} = 1$$

$$\therefore \frac{3x + 2y + 52 - 4x - 4y}{36} = 1$$

$\therefore 52 - x - 2y = 36$

$\therefore x + 2y = 16$

x and y can take values (2, 7), (4, 6), (6, 5), (8, 4), (10, 3), (12, 2) and (14, 1).

The maximum value that $x + y$ can take is 13. Also, $(13 - x - y) > 0$.

$\therefore x$ and y can take values (2, 7), (4, 6), (6, 5) and (8, 4).

By the condition given in the question, $x + y$ should be a prime number, therefore, $x = 6$ and $y = 5$.

$\therefore$ A works alone for 6 days, B works alone for 5 days and A and B work together for 2 days.

Hence, option 4.

Discuss the solution with Testfunda users.

Solution #70: (18-Nov-09)

Answer Option 1. The gist of the argument is as follows: Statistics may not be giving us the right picture about the conflict between economic development and the protection of environment. If statistics (measure) tells us that a better GDP is better life, we may do things to improve GDP and these things may harm the environment, and vice versa. The conclusion that can follow from the above is that we should hence have better measures (statistics) to understand the relation between economic well being and environment protection. Option 1 states this explicitly.
Option 2 is only one sided.
Option 3 mentions demand and is ambiguous and outside the scope of the argument.
Option 4 generalises and misses the thrust of this argument.
Option 5 is contrary to the argument.
Hence, the correct answer is option 1.

Discuss the solution with Testfunda users.

Solution #71: (19-Nov-09)

From statement A alone,

If $p = 4$ then $4! < x < 5!$

$\therefore 24 < x < 120$

In the given range, there are prime as well as composite numbers.

$\therefore$ Statement A alone is not sufficient.

From statement B alone,

We know that $p!$ is divisible by 1, 2, 3, ..., p.

$\therefore p! + 2$ will be divisible by 2, $p! + 3$ will be divisible by 3, ..., $p! + p$ will be divisible by p.

$\therefore$ As, $p! + 2 \le x \le p! + p$, x is divisible by 2 or 3 or 4 or 5 ... or p.

$\therefore x$ will not be a prime number.

$\therefore$ Statement B alone is sufficient.

Hence, option 2.

Discuss the solution with Testfunda users.

Solution #72: (20-Nov-09)

The main idea is: puppies learn to respond to touch based on whether the mother has been petted during her pregnancy. The concluding statement about the puppy's sense of touch would depend on this information.
In option 2 can be eliminated as there is no supporting data for puppies behaving in an intolerant manner if they have had a cruel time in utero. The passage mainly concerns itself with the consequences of positive touches and there is no mention of the effect of negative touches.
Option 3 can be eliminated as there no evidence of the exponential nature of the relationships.
Option 4 is eliminated as there is no data on the development of other senses.
Option 5 is eliminated as there is no data on mother's lifestyle.
Option 1 fit in as a conclusion statement as it has been established in the passage that petting the mother leads to docile puppies that tolerate touching.
Hence, the correct answer is option 1.

Discuss the solution with Testfunda users.

Solution #73: (21-Nov-09)

$$X = \left[\frac{1}{\sqrt{4}+\sqrt{6}} + \frac{1}{\sqrt{6}+\sqrt{8}} + \cdots + \frac{1}{\sqrt{782}+\sqrt{784}}\right]$$

Rationalising each term of X we get,

$$X = \left[\frac{1}{\sqrt{4}+\sqrt{6}} \times \frac{\sqrt{6}-\sqrt{4}}{\sqrt{6}-\sqrt{4}} + \frac{1}{\sqrt{6}+\sqrt{8}} \times \frac{\sqrt{8}-\sqrt{6}}{\sqrt{8}-\sqrt{6}} + \cdots + \frac{1}{\sqrt{782}+\sqrt{784}} \times \frac{\sqrt{784}-\sqrt{782}}{\sqrt{784}-\sqrt{782}}\right]$$

$$= \left[\frac{\sqrt{6}-\sqrt{4}}{6-4} + \frac{\sqrt{8}-\sqrt{6}}{8-6} + \cdots + \frac{\sqrt{784}-\sqrt{782}}{784-782}\right]$$

$$= \left[\frac{\sqrt{6}-\sqrt{4}}{2} + \frac{\sqrt{8}-\sqrt{6}}{2} + \cdots + \frac{\sqrt{784}-\sqrt{782}}{2}\right]$$

$$= \left[\frac{\sqrt{6}}{2} - \frac{\sqrt{4}}{2} + \frac{\sqrt{8}}{2} - \frac{\sqrt{6}}{2} + \cdots + \frac{\sqrt{784}}{2} - \frac{\sqrt{782}}{2}\right]$$

$$= \frac{\sqrt{784}}{2} - \frac{\sqrt{4}}{2}$$

$$= \frac{28-2}{2}$$

= 13

Hence, option 5.

Discuss the solution with Testfunda users.

Solution #74: (22-Nov-09)

The main idea is: osteoporosis is caused in women due to lack of calcium- men can be affected similarly. The assumption we need to find is a statement that shows how it is possible to apply what applies to women to the men as well.
We can rule out Option 1 as the author has concluded ('which is why') that men should check the level of calcium, based on the data provided about early onset of osteoporosis in women.
Option 2 is ruled out as we have to find a statement that finds a specific relation between men and women.
Option 3 is ruled out as it does not refer to why men will get osteoporosis as well.
Option 5 is ruled out as it does not show how what has been found out about women is made to apply to men.
Only if the author assumes that 'Since low calcium causes osteoporosis in women, it will have a similar effect on men too' the argument presented in main data holds true..
Hence, the correct answer is option 4.

Discuss the solution with Testfunda users.

Solution #75: (23-Nov-09)

We have that,

$A_{n+1} = A_n^2 + 3A_n + 1$

$\therefore A_{n+1} + 1 = A_n^2 + 3A_n + 2$

$\therefore A_{n+1} + 1 = (A_n + 1)(A_n + 2)$

$$\therefore \frac{1}{A_{n+1}+1} = \frac{1}{(A_n+1)(A_n+2)}$$

$$\therefore \frac{1}{A_{n+1}+1} = \frac{1}{A_n+1} - \frac{1}{A_n+2}$$

Rearranging, we get,

$$\frac{1}{A_n+2} = \frac{1}{A_n+1} - \frac{1}{A_{n+1}+1}$$

$$\text{Now, } S = \frac{1}{A_1+2} + \frac{1}{A_2+2} + \frac{1}{A_3+2} + \cdots + \frac{1}{A_{200}+2}$$

$$= \left[\frac{1}{A_1+1} - \frac{1}{A_2+1}\right] + \left[\frac{1}{A_2+1} - \frac{1}{A_3+1}\right] + \cdots + \left[\frac{1}{A_{200}+1} - \frac{1}{A_{201}+1}\right]$$

$$= \frac{1}{A_1+1} - \frac{1}{A_{201}+1}$$

$$\because A_1 = \frac{1}{3}, \frac{1}{A_1+1} = \frac{3}{4}$$

Also by the definition of A_n, $A_{201} > 0$

In addition, $S > 0$, since it is the sum of positive terms.

$$\therefore S = \left(\frac{1}{A_1+1} - \frac{1}{A_{201}+1}\right) < \frac{3}{4}$$

$$\therefore 0 < S < \frac{3}{4}$$

∴The least integer greater than $S = 1$
Hence, option 1.

Discuss the solution with Testfunda users.

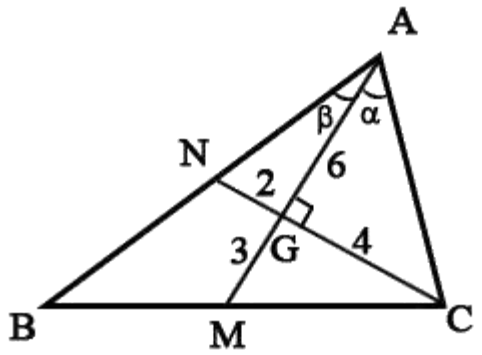
Solution #76: (24-Nov-09)

The main argument presented in this passage is that the fathers' rights movement say that domestic violence studies based on the CTS show that men comprise a "significant portion" of the victims of domestic violence.
Option 2 talks about shelter - whereas the argument is about violence - the connection is indirect rather than direct.
Option 3 only offers an elaboration of the fact provided in the passage, 'they call for more services to be provided for male victims of domestic violence'.
Option 4 is a feeling and does not strengthen the argument.
Option 5 is ruled out as it does not indicate if the victim is the husband - if it were then it would strengthen the argument that men comprise a significant portion of the victims of domestic violence.
If there are more men who are victims of domestic violence but aren't able to talk about it, then it means that their number will add to the already 'significant portion' of the victims of domestic violence.
Hence, the correct answer is option 1.

Discuss the solution with Testfunda users.

Solution #77: (25-Nov-09)

The given data can be represented in the following manner.



Let G be the point of intersection of the medians.

∴ G is the centroid of ΔABC.

∴ G divides both the medians AM and CN in the ratio 2 : 1.

Since CN = 6 cm, therefore, CG = 4 cm and GN = 2 cm

Also, since AM = 9 cm, we have AG = 6 cm and GM = 3 cm

Let ∠GAC = α and ∠NAG = β

From ΔGAC, we get that,

$$\tan \alpha = \frac{4}{6} = \frac{2}{3}$$

From ΔNAG, we get that,

$$\tan \beta = \frac{2}{6} = \frac{1}{3}$$

Now, in ΔBAC, $\angle A = \alpha + \beta$

$\therefore \tan A = \tan (\alpha + \beta)$

$$\therefore \tan A = \frac{\tan \alpha + \tan \beta}{1 - \tan \alpha \times \tan \beta} = \frac{\frac{2}{3} + \frac{1}{3}}{1 - \left(\frac{2}{3} \times \frac{1}{3}\right)} = \frac{9}{7}$$

$$\therefore \angle A = \tan^{-1}\left(\frac{9}{7}\right)$$

Hence, option 5.

Discuss the solution with Testfunda users.

Solution #78: (26-Nov-09)

The main idea in the passage is that higher order primates have a sense of reciprocity and fairness. The example given to support this idea is that of chimpanzees who remember who they are obligated towards and to whom they are not. To further strengthen this argument we need a statement that elaborates this idea or example.
Options 3 and 4 introduce new ideas that do not support the argument. Options 3 introduces morality into the picture. Option 4 introduces the idea of group behaviour.
Option 5 talks about social order in the "ancestors of the human population", but we do not know how these are related to the social animals and the higher order primates discussed in the passage.
Option 2 weakly supports the argument, but is eliminated compared to option 1, which supports it much more directly.
Option 1 elaborates the example given in the passage, that of the chimpanzees. It explains the concept of chimpanzees being able to remember who has done them a favour since the statement 'chimpanzees are likely to share food with individuals who have done them the favour of grooming them.
Hence, the correct answer is option 1.

Discuss the solution with Testfunda users.

Solution #79: (27-Nov-09)

We look for integer values of a, b and c such that $a^3 + b^3 + c^3 = 3abc$

This equation is satisfied by $(a, b, c) \equiv (1, 1, 1)$

$\therefore d = 1 + 1 + 1 = 3$

$$\therefore X = \frac{1+1+1}{9} = \frac{1}{3}$$

Hence, option 2.

Alternatively,

$(a + b + c)^3 = a^3 + b^3 + c^3 + 3a^2b + 3ab^2 + 3b^2c + 3bc^2 + 3a^2c + 3ac^2 + 6abc$

As $a^3 + b^3 + c^3 = 3abc$

$\therefore d^3 = 3abc + 3a^2b + 3ab^2 + 3b^2c + 3bc^2 + 3a^2c + 3ac^2 + 6abc$

$\therefore d^3 = 3a^2b + 3ab^2 + 3abc + 3b^2c + 3bc^2 + 3abc + 3a^2c + 3ac^2 + 3abc$

$\therefore d^3 = 3ab(a + b + c) + 3bc(a + b + c) + 3ac(a + b + c)$

$\therefore d^3 = 3(a + b + c)(ab + bc + ac)$

As $(a + b + c) = d$

$\therefore d^3 = 3d(ab + bc + ac)$

$\therefore d^2 = 3(ab + bc + ac)$

$(a + b + c)^2 = a^2 + b^2 + c^2 + 2(ab + bc + ac)$

$$d^2 = a^2 + b^2 + c^2 + 2 \times \frac{d^2}{3}$$

$$\therefore \frac{d^2}{3} = a^2 + b^2 + c^2$$

$$\therefore \frac{a^2 + b^2 + c^2}{d^2} = \frac{1}{3}$$

$$\therefore X = \frac{a^2 + b^2 + c^2}{d^2} = \frac{1}{3}$$

Hence, option 2.

Discuss the solution with Testfunda users.

Solution #80: (28-Nov-09)

Frazer's theory states that at the start man had an unfounded belief in magic, then he started believing that gods controlled nature, thereafter he starts thinking about how science can be used to discover the nature of the natural phenomenon. We have to find a statement that sums this up.
Option 2 is ruled out as there is no mention of man abandoning myth.
Option 3 is ruled out as there is no indication that myth is a counterpart of science.
Option 4 is not the answer as there is no reference to a historical development of the 'primitive mentality'
Option 5 is also not the answer since there is no mention of how language influenced mythology.
Option 1 is the answer as it sums up the progression of ideas: from magic to religion to science.
Hence, the correct answer is option 1.

Discuss the solution with Testfunda users.

Solution #81: (29-Nov-09)

In the prime numbers between 100 and 200, which are 101, 103, 107, 113 etc, there is only one with first two digits same, namely, 113.
But 133 is not prime.

Now, between 221 and 229 there are 3 primes 223, 227 and 229.

Also, 233 is a prime number, therefore, the smallest number satisfying the given condition is 2233.

Sum of digits of the required number = 10

Hence, option 2.

Discuss the solution with Testfunda users.

Solution #82: (30-Nov-09)

The main argument in the passage is that men should have as much say in the decision-making process when it comes to a pregnancy as women have.
Option 3 sums up the argument presented in the passage – 'and give men the same reproductive rights as women' - hence the author is most likely to agree with it.
There is no data in the passage to make us support option - rather the author is likely to disagree with the option.
Options 2 and 5 are too generalised as statement to be chosen.
Option 4 is opposite of what the passage states as fact.
Option 5 is ruled out as this is a generalised statement that isn't supported by any data in the passage.
Hence the correct answer is option 3.

Discuss the solution with Testfunda users.

Solution #83: (01-Dec-09)

Given that the roots of $x^2 + 3px + 36 = 0$ are real.

$\therefore$ The discriminant of the equation will be either positive or zero, i.e., $\Delta \geq 0$

$(3p)^2 - 4 \times 36 \geq 0$

$(3p)^2 - 144 \geq 0$

$(3p)^2 - 12^2 \geq 0$

$(3p + 12)(3p - 12) \geq 0$

i.e. $p \in (-\infty, -4] \cup [4, \infty)$
But, since $p > 0$, we have

$p \in [4, \infty)$ i.e. $p \geq 4$ ... (i)

Also, the roots of the equation $x^2 - 4x + p = 0$ are real.

$\therefore \Delta \geq 0$

$4^2 - 4p \geq 0$

$4p - 16 \leq 0$

$p \leq 4$ ... (ii)

From (i) and (ii), it is evident that $p = 4$

$\therefore$ Only one value of p exists such that both the equations have real roots.

Hence, option 2.

Discuss the solution with Testfunda users.

Solution #84: (02-Dec-09)

Option 1 talks about computer viruses which is not pertinent to the world wide web of microbes.
Similarly, option 2 is correct only if we are considering the comparison between microbes and computer viruses – not when considering the www of microbes. There is no data in the passage to support this option.
Option 3 is irrelevant as it talks about the origin of certain aspects of human genome.
Option 4 is factually correct but is not the assumption in this argument – there are no details to support this option.
Option 5, the answer, is almost stated in the argument as, 'informational exchange' and "microbes exchange information with each other and their environment" – 'other organisms' in the option sufficiently accommodates 'each other and environment'.
Hence, the correct answer is option 5.

Discuss the solution with Testfunda users.

Solution #85: (03-Dec-09)

Let the amount invested by Mahesh be *P*, and the interest is compounded annually at the rate of *r*%.

We know that the Compound Interest for the 5th year is Rs. 2,000.

$$\therefore P\left(1+\frac{r}{100}\right)^5 - P\left(1+\frac{r}{100}\right)^4 = 2000$$

$$\therefore P\left(1+\frac{r}{100}\right)^4\left(1+\frac{r}{100}-1\right) = 2000$$

$$\therefore \frac{Pr}{100}\left(1+\frac{r}{100}\right)^4 = 2000 \qquad \ldots (i)$$

And similarly we know that the Compound Interest for the 11th year is Rs. 5,000.

$$\frac{Pr}{100}\left(1+\frac{r}{100}\right)^{10} = 8000 \qquad \ldots (ii)$$

Dividing (ii) by (i) we have

$$\left(1+\frac{r}{100}\right)^6 = 4$$

$$\therefore \left(1+\frac{r}{100}\right)^{15} = \left[\left(1+\frac{r}{100}\right)^6\right]^{\frac{5}{2}} = 4^{\frac{5}{2}} = 2^5 = 32$$

$$\therefore \text{Amount Rajesh will get after 15 years} = 5000\left(1+\frac{r}{100}\right)^{15}$$

$$= 5000 \times 32$$

$$= \text{Rs. } 1{,}60{,}000$$

Hence, option 3.

Discuss the solution with Testfunda users.

Solution #86: (04-Dec-09)

"... many European intellectuals argue that not just capital punishment, but punishment in general, does not deter criminals." In order to weaken this argument we have to say that punishment does deter crime. Hence the decrease in the crime rate in the US will show that the existence of capital punishment (harsh punishments) have had an effect on the crime rate. Similarly the increase in the rates in Europe also will prove that lack of punishment has had an effect. This weakens the argument of the European intellectuals.
Option 1 is incorrect as it supports the argument of the intellectuals.
Option 3 also strengthens the intellectuals' view.
Option 4 and 5 do not address the link between punishment and crime; hence, they are eliminated.
Hence, the correct answer is option 2.

Discuss the solution with Testfunda users.

Solution #87: (05-Dec-09)

Let $\log_5(3x^2 + 10x) = p$

Given that $25^{\log_5 p} - 5p + 6 = 0$

$5^{2\log_5 p} - 5p + 6 = 0$

$5^{\log_5 p^2} - 5p + 6 = 0$

$\therefore p^2 - 5p + 6 = 0$
$\therefore (p - 2)(p - 3) = 0$
$\therefore p = 2$ or 3
Case 1: $p = 2$
$\log_5(3x^2 + 10x) = 2$
i.e. $3x^2 + 10x = 5^2$
$\therefore 3x^2 + 10x - 25 = 0$
$\therefore 3x^2 + 15x - 5x - 25 = 0$
$\therefore 3x(x + 5) - 5(x + 5) = 0$
$\therefore (x + 5)(3x - 5) = 0$

$$\therefore x = -5 \text{ or } \frac{5}{3}$$

For both these values of x, $\log_5(3x^2 + 10x)$ is well defined.
Case 2 : $p = 3$
$\log_5(3x^2 + 10x) = 3$
i.e. $3x^2 + 10x = 5^3$
$\therefore 3x^2 + 10x - 125 = 0$
$\therefore 3x^2 - 15x + 25x - 125 = 0$
$\therefore 3x(x - 5) + 25(x - 5) = 0$
$\therefore (3x + 25)(x - 5) = 0$

$$\therefore x = -\frac{25}{3} \text{ or } 5$$

For both these values of x, $\log_5(3x^2 + 10x)$ is well defined.

$$\therefore \text{The sum of all the values of } x = -5 + \frac{5}{3} - \frac{25}{3} + 5 = -\frac{20}{3}$$

Hence, option 1.
Discuss the solution with Testfunda users.

Solution #88: (06-Dec-09)

Only if option 4 is true can corruption be reduced by cutting back the role of government/ government officials, since according to the argument the source of corruption.
Option 1 is incorrect because the opposite is correct – deregulation decreases corruption.
How regulation affects government officials (option 2), or if does at all is assumed in the argument. Since it is deregulation that reduces corruption option 3 is incorrect.
Option 5 is beyond the scope of the argument.
Hence, the correct answer is option 4.

Discuss the solution with Testfunda users.

Solution #89: (07-Dec-09)

$$\text{Let } y = x - 1 + \frac{1}{x-2}$$

$$= x - 2 + \frac{1}{x-2} + 1$$

$$\text{Let } k = (x-2) + \frac{1}{(x-2)}$$

$$\therefore y = k + 1$$

$$\because (x-2) > 0 \text{ , therefore, } (x-2) + \frac{1}{(x-2)} \geq 2$$

∴ The minimum value of $y = 2 + 1 = 3$

This minimum value is attained when $(x - 2) = 1$ i.e. $x = 3$

But, we have

$15x^2 - 214x + 455 \geq 0$

$\therefore 15x^2 - 175x - 39x + 455 \geq 0$

$\therefore 5x(3x - 35) - 13(3x - 35) \geq 0$

$\therefore (3x - 35)(5x - 13) \geq 0$

$$\therefore x \leq \frac{13}{5} \text{ or } x \geq \frac{35}{3}$$

$$\text{i.e. } x - 2 \leq \frac{3}{5} \text{ or } x - 2 \geq \frac{29}{3}$$

Hence, the minimum value of y obtained as 3 by taking $x - 2 = 1$ i.e. $x = 3$ is not valid.

For $(x-2)=\frac{3}{5}, (x-2)+\frac{1}{x-2}=\frac{34}{15}$

For $(x-2)=\frac{29}{3}, (x-2)+\frac{1}{x-2}=\frac{850}{87}$

For $0<x-2\leq\frac{3}{5}$, we have $(x-2)+\frac{1}{x-2}\geq\frac{34}{15}$

For $x-2\geq\frac{29}{3}$, we have $(x-2)+\frac{1}{x-2}\geq\frac{850}{87}$

$\therefore$ The minimum value of $(x-2)+\frac{1}{x-2}=\frac{34}{15}$

$\therefore$ The minimum value of $y=\frac{34}{15}+1=\frac{49}{15}$

Hence, option 2.

Discuss the solution with Testfunda users.

Solution #90: (08-Dec-09)

Option 1 is eliminated because it is possible that the policy may work in the US and Eastern Europe.
Option 2 is eliminated because we cannot infer that the policies are ineffective simply because they have caused increase in unemployment – social welfare policy *per se* may be quite effective.
Option 3 would be said about Western Europe – there is no data to conclude this about Eastern Europe.
Option 4 is also not conclusive. Simply because some policies are in place it is not possible to comment on the general health of a nation. Even the reverse could be true.
Hence the answer is option 5.

Discuss the solution with Testfunda users.

Solution #91: (09-Dec-09)

Selling price per unit = $2(80 - n)$

Total revenue = $n \times 2(80 - n) = 2n(80 - n)$

$P(n)$ = Total profit earned per day = $2n(80 - n) - [n^2 + 10n + 363]$

$= 150n - 3n^2 - 363$

Profit earned in a week = $7 \times P(n)$

To maximize the weekly profit earned we have to maximize $P(n)$.

$$\frac{d(P(n))}{dn} = 150 - 6n$$

$$\text{If } \frac{d(P(n))}{dn} = 0 \text{ then } n = 25$$

$$\text{Also, } \frac{d^2(P(n))}{dn^2} = -6 < 0$$

∴ By the second derivative test $P(n)$ is maximum at $n = 25$.

∴ The factory should produce $7 \times 25 = 175$ units of tube lights per week to maximize its weekly profits.

Hence, option 2.

Discuss the solution with Testfunda users.

Solution #92: (10-Dec-09)

This analogy is based on the secondary meaning of the word habit. A nun's habit refers to the garb that is commonly worn by her.
The only option that comes close to this is option 3. A uniform is commonly worn by a soldier.
Hence, the correct answer is option 3.

Discuss the solution with Testfunda users.

Solution #93 (11-Dec-09)

$$f(x) = \text{cosec } x - \frac{1}{x} = \frac{1}{\sin x} - \frac{1}{x} = \frac{x - \sin x}{x \sin x}$$

$\lim_{x \to 0} f(x) = \frac{0}{0}$, which is an indeterminate form.

By L'Hospital's rule,

$$\lim_{x \to 0} \frac{x - \sin x}{x \sin x}$$

$$= \lim_{x \to 0} \frac{\frac{d(x - \sin x)}{dx}}{\frac{d(x \sin x)}{dx}}$$

$$= \lim_{x \to 0} \frac{1 - \cos x}{x \cos x + \sin x} = \frac{0}{0} \text{ (Indeterminate form)}$$

Applying L' Hospital's rule again,

$$\lim_{x \to 0} \frac{1 - \cos x}{x \cos x + \sin x}$$

$$= \lim_{x \to 0} \frac{\frac{d(1 - \cos x)}{dx}}{\frac{d(x \cos x + \sin x)}{dx}}$$

$$= \lim_{x \to 0} \frac{\sin x}{2 \cos x - x \sin x} = \frac{0}{2} = 0$$

Hence, option 1.

Discuss the solution with Testfunda users.

Solution #94: (12-Dec-09)

The key to solving these type of questions is to first place the phrases in their correct logical order to understand the flow of the sentence.
The correct logical order here is 4 - 3 - 2 - 5 - 1. Reading the sentence in its correct logical order makes it clear that the incorrect phrase lies in option 3.
"That something can be the volumetric region surrounding a single atom resonating energy or it can be a body of steam or air in a steam engine or it can be the body of a tropical cyclone or it could also be just one nuclide (i.e. a system of quarks) as some are theorizing presently in quantum thermodynamics".
The word, 'surrounding' is a gerund (a verb - noun). The correct form of a gerund is "word + '*ing*'".
Hence, the correct answer is option 3.

NOTE: A gerund is defined as that form of the verb which ends in - *ing*, and has the force of a Noun and a Verb.
For example- He is fond of *singing* songs from old Hindi movies.

Discuss the solution with Testfunda users.

Solution #95: (13-Dec-09)

We have to look at each possible case, and see whether we get a contradiction.

If A is of type T, B must be of type F, according to his statement.

However, then what B says is true, and this is a contradiction because B is of type F. Hence, A cannot be of type T.

Since we know that A is of type F, B is of type T by his statement since one of them is of type T and one of type F.

This assumption does not give a contradiction, therefore, A is of type F and B is of type T.

Hence, option 4.

Discuss the solution with Testfunda users.

Solution #96: (14-Dec-09)

A Slap on the Wrist: A very mild punishment.
A Chip On Your Shoulder: Someone who is troublesome to deal with is said to have a "chip on his shoulder".
Apple of My Eye: Someone who is cherished above all others.
Bite Your Tongue: To avoid talking.
Break A Leg: A superstitious way to say 'good luck' without saying 'good luck', but rather the opposite.
Hence, the correct answer is option 4

Discuss the solution with Testfunda users.

Solution #97: (15-Dec-09)

Since each sport is played by a different number of people, we need to assign the numbers 1, 2 and 3 in some order to cricket (C), football (F) and hockey (H) corresponding to the number of students who play that game.

F must correspond to either 2 or 3. Since Amar does not play hockey, H must correspond to either 1 or 2.Since, not all play cricket, C must correspond to either 1 or 2.

From these, we can see that if $C = 1$, then $H = 2$ and $F = 3$

If C = 2, then $H = 1$ and $F = 3$

In either case, all three play football.

Since Akbar plays only one sport, he must play football.

∴ Akbar does not play hockey or cricket.

We know that Amar does not play hockey. Therefore, as each sport is played by at least one person, Anthony plays hockey.

∴ $H = 1$ and $C = 2$

Also, as Akbar plays one sport and Cricket is played by 2 people, Amar and Anthony play cricket.

Hence, option 3.

Discuss the solution with Testfunda users.

Solution #98: (16-Dec-09)

Mum's the word means to keep quiet or to say nothing.
Elvis has left the building means the show has come to an end. It's all over.
Pipe Down means to shut-up or be quiet.
Can't cut the mustard means someone who isn't adequate enough to compete or participate.
Let bygones be bygones means to forget about a disagreement or argument.
Options 1 and 3 both convey the same idea.
Hence, the correct answer is option 5.

Discuss the solution with Testfunda users.

Solution #99: (17-Dec-09)

First, we need to determine who did better between Laloo 4 and Laloo 5.
At least two candidates must have done better than Laloo 5, since Laloo 2 finished ahead of him, and there is at least one person ahead of Laloo 2.
If Laloo 5 finished ahead of Laloo 4, Laloo 4 must have finished sixth, since there are two people between Laloo 4 and Laloo 5.
However, this is not possible, since Laloo 1 did worse than Laloo 4.
Hence, Laloo 4 must have finished ahead of Laloo 5.
Of the two people between Laloo 4 and Laloo 5, one must be Laloo 2, since he is separated from Laloo 5 by one candidate only.
Since Laloo 6 is ahead of Laloo 4 and Laloo 1 is behind Laloo 5, the other person between Laloo 4 and Laloo 5 must be Laloo 3.
The final order is therefore Laloo 6, Laloo 4, Laloo 2, Laloo 3, Laloo 5 and Laloo 1.
Hence, option 4.

Discuss the solution with Testfunda users.

Solution #100: (18-Dec-09)

In the sentence, “The students are coming home by bus.” the word come is used to show that the students are arriving by movement.
In the sentence, “May comes after April” the word come is used to show that something occurs at a certain point.
In the sentence, “The police ensured the tourists that no harm would come to them” the word come is used to highlight what did not befall someone.
In the sentence, “She comes across as quite an intelligent girl” the word come is used to show the kind of impression that the girl creates.
In the sentence, “My family comes first” the word come is used to indicate priority.
Hence, the correct answer is option 2
Discuss the solution with Testfunda users.

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