APTI PLUS
Academy for Civil Services Pvt. Ltd.
CREATING CIVIL SERVANTS FOR THE NATION

GENERAL STUDIES PRELIMS 2024 PAPER-II

ANSWER KEYS

By our Expert Team

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PREDICT THE UNPREDICTABLE

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UPSC CSE PRELIMS 2024

GS-2 ANSWER KEY SET-A

1. b	11. a	21. d	31. d	41. c	51. b	61. a	71. d
2. c	12. a	22. c	32. b	42. d	52. a/c	62. d	72. d
3. b/c	13. b	23. d	33. c	43. a	53. c	63. c	73. d
4. d	14. c	24. c	34. a	44. a	54. c	64. c	74. c
5. b	15. b	25. a	35. d	45. b	55. c	65. c	75. d
6. d	16. a	26. b	36. b	46. b	56. c	66. d	76. d
7. c	17. d	27. d	37. a	47. d	57. d	67. a	77. a
8. c	18. c	28. b	38. c	48. a	58. d	68. d	78. d
9. d	19. b	29. a	39. d	49. d	59. c	69. C	79. b
10. b	20. c	30. d	40. c	50. c	60. c	70. d	80. b

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GS-2 ANSWER KEY SET-B

1. d	11. d	21. a	31. b	41. d	51. a	61. b	71. c
2. b	12. c	22. a	32. c	42. d	52. d	62. a/c	72. d
3. c	13. d	23. b	33. b/c	43. d	53. c	63. c	73. a
4. a	14. c	24. c	34. d	44. c	54. c	64. c	74. a
5. d	15. a	25. b	35. b	45. d	55. c	65. c	75. b
6. b	16. b	26. a	36. d	46. d	56. d	66. c	76. b
7. a	17. d	27. d	37. c	47. a	57. a	67. d	77. d
8. c	18. b	28. c	38. c	48. d	58. d	68. d	78. a
9. d	19. a	29. b	39. d	49. b	59. C	69. c	79. d
10. c	20. d	30. c	40. b	50. b	60. d	70. c	80. c

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GS-2 ANSWER KEY SET-C

1. d	11. b	21. d	31. a	41. a	51. c	61. d	71. b
2. c	12. c	22. b	32. a	42. d	52. d	62. d	72. a/c
3. d	13. b/c	23. c	33. b	43. c	53. a	63. d	73. c
4. c	14. d	24. a	34. c	44. c	54. a	64. c	74. c
5. a	15. b	25. d	35. b	45. c	55. b	65. d	75. c
6. b	16. d	26. b	36. a	46. d	56. b	66. d	76. c
7. d	17. c	27. a	37. d	47. a	57. d	67. a	77. d
8. b	18. c	28. c	38. c	48. d	58. a	68. d	78. d
9. a	19. d	29. d	39. b	49. C	59. d	69. b	79. c
10. d	20. b	30. c	40. c	50. d	60. c	70. b	80. c

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UPSC CSE PRELIMS 2024

GS-2 ANSWER KEY SET-D

1. a	11. d	21. b	31. d	41. b	51. d	61. c	71. a
2. a	12. b	22. c	32. c	42. a/c	52. d	62. d	72. d
3. b	13. c	23. b/c	33. d	43. c	53. d	63. a	73. c
4. c	14. a	24. d	34. c	44. c	54. c	64. a	74. c
5. b	15. d	25. b	35. a	45. c	55. d	65. b	75. c
6. a	16. b	26. d	36. b	46. c	56. d	66. b	76. d
7. d	17. a	27. c	37. d	47. d	57. a	67. d	77. a
8. c	18. c	28. c	38. b	48. d	58. d	68. a	78. d
9. b	19. d	29. d	39. a	49. c	59. b	69. d	79. C
10. c	20. c	30. b	40. d	50. c	60. b	70. c	80. d

1.
Answer: b
Explanation:

Statement 1 is incorrect: The passage does not claim that current methods of food distribution are solely responsible for the loss and wastage of food. Food is lost or wasted throughout the supply chain, from initial agricultural production to final household consumption.

Statement 2 is correct: The passage indicates that land degradation (45%) is linked to deforestation, unsustainable agricultural practices, and excessive groundwater extraction, which can be inferred to be influenced by the need to produce more food due to loss and wastage.

Statement 3 is correct: The passage explicitly mentions that the energy spent on wasted food results in about 5 billion tonnes of carbon dioxide production every year, implying that reducing food wastage would lead to a lesser carbon footprint.

Statement 4 is incorrect: There is no information in the passage about the availability or unavailability of post-harvest technologies to prevent or reduce food loss and wastage.

2.
Answer: c
Explanation:

Statement 1 is correct: Reimagining the food distribution mechanism: The passage discusses food loss and wastage throughout the supply chain and highlights the negative impacts, suggesting that improvements are necessary.

Statement 2 is correct:. Social and moral responsibility:Although not explicitly stated, the passage implies that addressing food wastage is crucial for sustainability and reducing carbon footprint. This can be interpreted as a collective responsibility, thereby supporting assumption .

3.
Answer: b/c
Explanation:

Statement 1: This statement is more absolute than what the passage suggests. The passage indicates that fiscal backup is important for the effectiveness of monetary policy, but it doesn't explicitly state that central banks are completely unable to bring down inflation without it.

Statement 2: This statement accurately reflects the passage, which discusses how fiscal actions (like spending cuts or tax increases) are crucial for maintaining stable debts and ensuring that monetary policy remains effective.

4.
Answer: A
Explanation:

1. **Fiscal policies of governments are solely responsible for higher prices.**
    - The passage indicates that fiscal policies (government spending and taxation) play a significant role in the effectiveness of monetary policy and managing inflation. However, it does not claim that fiscal policies are solely responsible for higher prices. Inflation can result from various factors, including monetary policy, supply chain issues, and external economic conditions. Thus, **this assumption is not valid.**
2. **Higher prices do not affect the long-term government bonds.**
    - The passage discusses the impact of higher interest rates and inflation on government borrowing and debt-service costs, implying that higher prices and interest rates do affect government bonds, particularly through the cost of borrowing. Therefore, this **assumption is not valid.**

5.
Answer: B
Explanation:

A cube has to be cut into 64 identical smaller cubes.

- 64 is 4343, which means each dimension of the original cube must be divided into 4 equal parts.

2. **Cutting Strategy:**
    - Each dimension (length, width, height) of the cube must be divided into 4 parts.
    - For one dimension (say, along the length), you need 3 cuts to divide it into 4 equal parts.
    - Similarly, you need 3 cuts for each of the other two dimensions (width and height).
3. **Total Cuts Calculation:**
    - Number of cuts along the length: 3
    - Number of cuts along the width: 3
    - Number of cuts along the height: 3
    - Total number of cuts = 3+3+3 = 9

6.
Answer: D
Explanation:
The only possible signs to get the least value is
5-4-3+2x1
= 5-4-3+2
= 7-7 = 0.

7.
Answer: C
Explanation:

The number of men (M) and the number of days (D) required to complete a fixed work are inversely proportional. This means that if we increase the number of men, the number of days required to complete the work will decrease, and vice versa. We can represent this relationship with the following equation:

M * D = Constant (for a fixed work)

1. Initial Scenario:
    - Days (D1) = 6k days
    - We need to find the initial number of men (M1) but it's not given.
2. Target Scenario:
    - Days (D2) = 5k days

This can be written as

M1 * D1 = M2 * D2

where M2 is the number of men required to complete the work in 5k days.

Finding the Increase in Men (M2):

Since D1 = 6k and D2 = 5k, we can rewrite the equation as:

M1 * 6k = M2 * 5k

To find the ratio of M2 to M1 (M2/M1), we can divide both sides by 5k:

M2/M1 = (M1 * 6k) / (5k)

M2/M1 = 6/5

This means the number of men needs to be increased by a factor of 6/5.

Percentage Increase:

Now, we can calculate the percentage increase:

Percentage Increase = ((M2/M1) - 1) * 100

Percentage Increase = ((6/5) - 1) * 100

Percentage Increase = (1/5) * 100

Percentage Increase = 20%

Therefore, the number of men needs to be increased by 20% to complete the work in 5k days.

8.
Answer: c
Explanation:

Let's assume that the total work is 24.
Now,
The efficiency of X is 4.
The efficiency of Y is 3
The efficiency of Z is 3
By using the directions from the question, only one person at a time can work in each hour.
Means x followed by y then x followed by z.
Therefore,
(4+3+4+3+4+3+¾)=24 (total work)
That means 6 hours and 45 minutes.

9.
Answer: d
Explanation:

Since each factor of 5 contributes one trailing zero, the number of consecutive zeros at the end of the product is:

Total no of 5 are

5^10= 10
10^20= 20
15^30= 30
20^40 = 40
25^50= 5^100= 100

Therefore, the total number of 5 is 200. That will contribute 200 zeroes.

10.
Answer: b
Explanation:

64 is the least number which is a perfect square of 8 and perfect cube of 4.

Savings 1+3+5+7+9+11+13+15= 64

Total 8 days.

Therefore on 8th jan his total saving is perfect square as well as perfect cube.

11
Answer: a
Explanation:

Based on the passage, the most logical and rational inference can be drawn from the emphasis on systems theory, mathematical modeling, and interdisciplinary training in planning. Let's analyze the options:

- **(a) Curriculum for urban planning courses should have diverse and interdisciplinary approach.**
    - This statement aligns with the passage where it discusses the integration of social sciences, geography, and architecture into planning education. It reflects the importance of a broad and interdisciplinary approach in urban planning education, as seen in the early universities of the West.
- **(b) In India, city administration is under bureaucracy which lacks formal training in urban planning and management.**
    - While the passage contrasts planning education in the West with India, it doesn't specifically mention the bureaucratic structure or lack of formal training in Indian city administration.
- **(c) In India, the management of urban areas is a local affair with a chronic problem of insufficient funds.**
    - The passage does not focus on financial issues or local management structures in Indian urban areas. It emphasizes planning education and its integration with various disciplines.
- **(d) With high density of population and widespread poverty in our urban areas, planned development in them is very difficult.**
    - The passage does not discuss challenges specific to Indian urban areas such as high population density or poverty.

The passage discusses the origins and methods of urban planning education, emphasizing interdisciplinary training and the integration of various academic disciplines. Therefore, the statement that best reflects the logical and rational inference from the passage is:

- **(a) Curriculum for urban planning courses should have diverse and interdisciplinary approach.**

12
Answer: a
Explanation:

1. **India needs a new generation of urban professionals with knowledge relevant to modern urban practice.**
    - This assumption is supported by the passage which discusses the importance of systems theory, mathematical modelling, computing, statistics, optimization, and algorithms in urban planning. The passage implies that modern urban practice requires professionals who are trained in these areas to effectively translate social, spatial, and cultural desirables into practical planning solutions. Therefore, assumption 1 is **correct** based on the passage.
2. **Indian universities at present have no capacity or potential to impart training in systems approach.**
    - The passage does not explicitly mention that Indian universities have no capacity or potential to impart training in systems approach. It discusses how early universities in the West began training professionals in planning with a focus on systems theory and related disciplines. However, it does not provide information about the current capacity or potential of Indian universities in this regard. Without explicit information from the passage, assumption 2 cannot be confirmed. Therefore, assumption 2 is **not necessarily correct** based on the passage.

- Assumption 1 is supported by the passage.
- Assumption 2 is not supported by the passage.

13
Answer: b
Explanation:

The central idea of the passage focuses on the influence of money and engagement-driven algorithms on political discourse and the quality of politics in the digital age. Let's break down the key points from the passage:

- Money can buy more visibility and influence on social media, giving those with high capital a louder voice.
- Political discourse on social media often prioritises outshining opponents rather than focusing on substantive political discussions.
- Social media platforms prioritise content that generates high user engagement, even if it is controversial or inflammatory.

Given these points, the passage critiques how social media's structure and algorithms impact political discourse and the overall quality of politics. It emphasises the role of money and engagement metrics in shaping the digital landscape.

- (a) Constructed as a marketplace of views, social media ensures instant access to information.
    - This option focuses on social media as a marketplace of views but does not directly address the influence of money, engagement metrics, or the impact on political discourse and quality of politics. It does not capture the central idea of the passage.
- (b) Social media are not ideal or moral institutions but the products built by companies to make profits.
    - This option aligns with the central idea that social media, while providing platforms for communication, are driven by profit motives and are not necessarily ideal or moral institutions. It touches on the influence of money and the prioritization of profit over other considerations.
- (c) Social media have been created to strengthen democracies.
    - This option is incorrect because the passage discusses how social media's focus on engagement and visibility may actually detract from the quality of political discourse rather than strengthening democracies.
- (d) In today's world, social media are inevitable for a well-informed social life.
    - This option does not address the central idea of the passage related to the influence of money, engagement algorithms, and their impact on political discourse and quality of politics.

The best reflection of the central idea of the passage, based on the discussion of money buying louder voices, the focus on outshining opponents, and the impact of engagement-driven content, is option:

- (b) Social media are not ideal or moral institutions but the products built by companies to make profits.

14
Answer: c
Explanation:

1. **Internet is not inclusive enough.**
    - This assumption is supported by the passage, which highlights that voices with high capital can dominate the online discourse by purchasing more space for their opinions. This suggests that the internet's inclusivity is limited by financial power, allowing those with more resources to have a louder voice. Therefore, assumption 1 is **valid** based on the passage.
2. **Internet can adversely affect the quality of politics in a country.**

- This assumption is also supported by the passage, which argues that when political discourse becomes a competition of outshining opponents through louder voices (enabled by financial power), the quality of politics suffers. Additionally, the focus on promoting content that generates user engagement, regardless of its inflammatory nature, can lead to polarizing and low-quality political discourse. Therefore, assumption 2 is **valid** based on the passage.

- Assumption 1 (Internet is not inclusive enough) is supported by the passage.
- Assumption 2 (Internet can adversely affect the quality of politics in a country) is supported by the passage.

15
Answer: b
Explanation:

1. **Divisibility by 3:**
   - A number is divisible by 3 if the sum of its digits is divisible by 3.
   - In 222^333, all the digits are 2, and the sum of 2s is always divisible by 3 (e.g., 2, 2+2+2=6, 2+2+2+2+2+2=12, and so on).
   - Similarly, in 333^222, all the digits are 3, and the sum of 3s is also divisible by 3.
   - Therefore, the sum of 222^333 and 333^222 will be the sum of two numbers divisible by 3, making the final sum divisible by 3.
2. **Divisibility by 37:**
   - The divisibility rule of 37 states that a number is divisible by 37 if the difference of the product of its alternating digits (starting from the rightmost digit) is divisible by 37.
   - In 222^333, let's consider the last three digits (hundreds place onwards):
     - Product of alternating digits = (2 * 2) - 2 = 2
   - In 333^222, let's consider the last three digits:
     - Product of alternating digits = (3 * 3) - 3 = 6
   - However, directly calculating the difference of these products (2 and 6) is not enough to determine divisibility by 37. The rule applies to the entire number, not just the last few digits.
   - The key point here is that both 222 and 333 are multiples of 37 (222 = 6 * 37 and 333 = 9 * 37). When a number is a multiple of 37, raising it to any power (including exponents like 333 and 222) will also be a multiple of 37.
   - Therefore, both 222^333 and 333^222 are multiples of 37, and their sum will also be a multiple of 37.
3. **Divisibility by 2:**
   - A number is divisible by 2 if the last digit is even.
   - In both 222 and 333, the last digit is 2, which is even. However, when these numbers are raised to odd powers (333 and 222 respectively), the last digit will become odd (units digit of 2 raised to an odd power is always 2).

- Therefore, neither 222^333 nor 333^222 will have a last digit that's even. Consequently, their sum (222^333 + 333^222) won't necessarily be divisible by 2.

The expression 222^333 + 333^222 is divisible by 3 and 37 but not guaranteed to be divisible by 2. So the answer is (b) 3 and 37 but not 2.

16
Answer: a
Explanation:

To gain 20%

20% water is needed as, 100% percent honey will contribute to the 100% percent cost price of honey.

The extra 20%water in the mixture is profit.

Hence a is correct

17
Answer: d
Explanation:
Cyclicity of 3 is 4.
That means after every power of 4 the unit digits repeated.
Example- unit digit of 3^1= 3^5=3^9…
30^30
Unit digit of 30^30= 3^2=9
Hence option d is correct.

18
Answer: c
Explanation:

According to the question 421 and 427 when divided by the same number leaves the remainder 1.

That means 420 and 426 are completely divided by the divisor.

Factors of 420= 2x2x3x7x5

Factors of 426= 2x3x71

Now the possible divisors from above are 2,3 and 6.

19

Answer: b
Explanation:

To determine the possible bottle sizes for bottling all the petrol and diesel from cans A and B, we find the greatest common divisor (GCD) of 399 (petrol) and 532 (diesel).

Calculating the GCD of 399 and 532 using the Euclidean algorithm, we find:

GCD(399, 532) = 133

The divisors of 133 are 1, 7, 19, and 133. Therefore, the possible bottle sizes in liters are 1, 7, 19, and 133.

20
Answer: c
Explanation:

All possible prime numbers less than 10
2,3,5 and 7.

1. **Unit digit of S can be 0:** 2 3 and 5 we get 10 with 0 as unit digit

2. **Unit digit of S can be 9:**
    - Not possible because all possible combinations of prime number less than 10, i.e 2,3,5,7.
    - The least we get is 10
3. **Unit digit of S can be 5:** 3,5 and 7 we get 15

Hence only 1 and 3 are correct.

21
Answer: d
Explanation:

1. **For effective school education, parents have a greater role than the governments.**
    - The passage does not mention that many children are the first in their families to reach class 8, indicating a significant parental aspiration for education. However, it does not directly assert that parents have a greater role than governments in effective school education. The passage focuses more on the challenges and expectations faced by children and families rather than comparing parental versus governmental roles.

2. **School curriculum that conforms to today's requirements and is uniform for the entire country may address the issues brought out.**
    - The passage highlights issues such as reading struggles and lack of basic arithmetic skills among class 8 students. It suggests that academic competencies are lower than expected based on the curriculum. The assumption that a uniform curriculum that meets current needs might address these issues aligns with the discussion in the passage. If the curriculum is improved and made uniform across the country, it could potentially help address the educational challenges mentioned.

- Assumption 1 is not directly supported by the passage as having a greater role than the government in effective school education is not explicitly discussed.
- Assumption 2 also does not align with the passage's suggestion that the current curriculum may not meet the needs of students in terms of academic competencies.

22
Answer: c
Explanation:

The central idea conveyed by the passage is about the mismatch between educational achievements and expectations among children in class 8, especially in terms of reading and arithmetic skills, and the broader implications for their future. Here's a breakdown of the passage:

- Many children in class 8 struggle with reading and basic arithmetic.
- Despite completing elementary school, many are not prepared for higher academic challenges.
- Transitioning into adulthood without adequate skills impacts their ability to enter the organized workforce until they are legally of age.
- Families see education as a pathway to higher education and career opportunities, often the first in their families to do so.
- There is an expectation for graduates to move on to high school and college, rather than returning to agricultural jobs.

The best statement that reflects the central idea conveyed by the passage is:

(c) Public policy should ensure that competencies and achievements of young people are aligned with their expectations.

This statement encapsulates the concern about the gap between educational outcomes and societal expectations, implying a need for policies that address and improve educational competencies to meet these expectations effectively. Thus, the correct answer is c.

23
Answer: d
Explanation:

The passage discusses the evolution of the perception of science from the time of Newton and Galileo to the modern era. Initially, scientists like Newton and Galileo viewed science as an objective pursuit of truth, without considering broader social responsibilities. However, with the onset of the industrial revolution, there emerged a recognition that science has social implications and responsibilities beyond mere truth-telling.

The author suggests that the modern view of science includes a social responsibility aspect that was not apparent to early scientists. Therefore, the best statement reflecting the author's thinking about science is:

(d) Science must pursue truth but be responsible for social welfare.

This statement acknowledges both aspects discussed in the passage: the pursuit of truth, which has always been a core value of science, and the newer recognition of social responsibility that emerged during the industrial revolution. Thus, the correct answer is d.

24
Answer: c
Explanation:
The sequence starts with a single letter (AABCD).
Followed by repetition of the next alphabet B , followed by C and D.
Hence option C is correct.

25
Answer: a
Explanation:
Let's denote the capital contributed by Q as x. Then, the capital contributed by P would be x + 14,000.
Given that P has invested for 8 months and Q for 10 months, we can calculate their shares of the profit using the formula:
P's share = (Capital contributed by P * Time P invested) / Total capital * Total time
Q's share = (Capital contributed by Q * Time Q invested) / Total capital * Total time
Given that P's share is Rs. 400 more than Q's share, we have:
P's share - Q's share = 400
Substitute the values and solve the equations to find the capital contributed by P.
After solving the equations, the capital contributed by P is Rs. 30,000. Therefore, the answer is (a) Rs. 30,000.

26
Answer: b
Explanation:

1. **Represent Salaries with Multipliers:**
    - Let R's salary be represented by a base value of 100 (or any other number).

- Since Q's salary is 20% lower than R's salary, Q's salary can be represented as 0.8 * 100 = 80 (80% of R's salary).
- P's salary is 20% lower than Q's salary, so P's salary can be represented as 0.8 * 80 = 64 (80% of Q's salary or 64% of R's salary).

2. **Calculate Percentage Difference:**
   - Now, we need to find the percentage difference between R's salary (100) and P's salary (64).

There are two ways to solve this:

Method 1: Direct Difference:

- Percentage difference = ((R's salary - P's salary) / P's salary) * 100
- Percentage difference = ((100 - 64) / 64) * 100
- Percentage difference = (36 / 64) * 100
- Percentage difference = 56.25%

Method 2: Multiplier Difference:

- We can express the difference between R's and P's salary as a multiplier relative to R's salary.
- Difference multiplier = (R's salary - P's salary) / R's salary
- Difference multiplier = (100 - 64) / 100
- Difference multiplier = 0.36
- Now, convert this difference multiplier to a percentage:
- Percentage difference = Difference multiplier * 100
- Percentage difference = 0.36 * 100
- Percentage difference = 36%
- But this represents the difference as a portion of R's salary. We need it relative to P's salary.
- Since P's salary is 64, a 36% difference from R's salary (100) translates to a higher percentage difference relative to P's salary.
- To calculate this, we can divide the difference (36) by P's salary (64) and multiply by 100:
- Percentage difference relative to P's salary = (Difference / P's salary) * 100
- Percentage difference = (36 / 64) * 100
- Percentage difference = 56.25%

Both methods lead to the same answer: R's salary is 56.25% more than P's salary.

27
Answer: d
Explanation:

To find the percentage change, we use the formula:

Percentage Change= ((New Value-Original Value Original Value)/original values)× 100.

Substituting the values:

Original Value = 4x

New Value = x/4

Percentage Change =((x/4-4x)/ 4x) × 100.

Simplify the numerator: x/4-4x = x-16x/4= -15x/4

Percentage Change = ((15x/4)/4x) × 100 = -15/16 × 100= -93.75.

Therefore, the percentage change in the result due to the mistake is 93.75%.

This negative percentage indicates a decrease in the value resulting from the mistake of dividing by 4 instead of multiplying by 4.

28
Answer: b
Explanation:

- 80% of students passed English.
- 70% of students passed Hindi.
- 15% of students failed in both subjects.

The students who passed in at least one subject would be those who didn't

fail in both, which is 100% - 15% = 85%.

To find the students who passed in both subjects, we add the ones who passed in English and Hindi and subtract the ones who passed in at least one subject:

80% + 70% - 85% = 65%

Therefore, the percentage of students who passed in both subjects is 65%.

The percentage of students who failed in only one subject can be found by subtracting the percentage of students who passed in both and those who failed in both from 100%:

100% - 65% - 15% = 20%

Thus, the percentage of students who failed in only one subject is 20%.

29
Answer: a
Explanation:

- Let f be the father's current age.
- Let s be the son's current age.
- Let n be the number of years ago when the father's age was equal to the son's current age.

Equations:

1. f + s = 130 (Sum of their ages)
2. f = 4(s - n) (Father's age was four times son's age n years ago)
3. f - n = s (Father's age was equal to son's current age n years ago)

Solution:

1. **Express f in terms of s and n:**

From equation 3, f = s + n.

2. **Substitute f in equation 2:**

(s + n) = 4(s - n)

3. **Solve for n:**

Expand and simplify the equation from step 2:

s + n = 4s - 4n 5n = 3s n = 3s / 5

4. **Find f and s:**

Substitute n back into the equations for f and s:

f = s + (3s / 5) = 8s / 5 s = 650 / 13 (by substituting f + s = 130 and solving for s)

5. Calculate the difference in ages (f - s):

f - s = (8s / 5) - (650 / 13) = 30

Therefore, the difference in their ages is 30 years.

30
Answer: d
Explanation:

All three statements (1, 2, and 3) are correct.

1. **1000 litres = 1 m3:** This statement is correct. There are 1000 liters in one cubic meter (m3). It's a standard unit conversion for volume measurement.
2. **1 metric ton = 1000 kg:** This statement is also correct. One metric ton is equal to 1000 kilograms (kg). Metric ton is another term for megagram (Mg) in the International System of Units (SI).
3. **1 hectare = 10000 m2:** This statement is accurate as well. One hectare is equivalent to 10,000 square meters (m2). It's a unit of area measurement commonly used in land measurement.

Therefore, the answer is (d) 1, 2 and 3. All the given statements represent correct conversions between units.

31
Answer: d
Explanation:

The passage discusses the relationship between science and mankind, emphasizing their interconnectedness and the potential impact of science on human history and civilization. Let's analyze the statements in the context of the passage:

1. **Without science, mankind could not have continued to exist till today.**
    - This statement is not explicitly supported by the passage. While science has undoubtedly played a crucial role in advancing human civilization and improving quality of life, the passage does not state or imply that humanity would not have survived without science. Therefore, statement 1 is not emphatically conveyed by the author.
2. **It is the science that will ultimately determine the destiny of mankind.**
    - The passage does not suggest a strong connection between science and the course of human history. The author highlights that science is intertwined with mankind's progress and that its influence, both beneficial and detrimental, cannot be overlooked. While the passage does not explicitly state that science will definitively determine mankind's destiny, it implies that science has a significant role in shaping human affairs.

- Statement 1 is not supported by the passage.

- Statement 2 does not align closely with the passage's discussion on the impact and role of science in human history.

32
Answer: b
Explanation:

1. The passage suggests that it is easy to blame science for the horrors of war but also points out that science and mankind cannot be divorced from each other. It questions whether the horrors of modern life are truly the inevitable result of scientific progress. Therefore, assumption 1 ("The horrors of modern life are the inevitable result of the progress of science.") is not explicitly supported by the passage. In fact, the passage raises doubt about this assumption by questioning whether the fault lies elsewhere.
2. The passage emphasizes that science is intricately linked with mankind's history and that its beneficial or detrimental effects are influenced by human actions and decisions. It suggests that science is what humans have made it, indicating that assumption 2 ("The aspect of truth likely to be overlooked is that science is what man has made it.") aligns with the passage's perspective.

- Assumption 1 is not correct.
- Assumption 2 is correct.

33
Answer: c
Explanation:

The passage talks about the experience gained by merchants through travel, where they come to understand the universal and local aspects of goods they trade. It then extends this idea to human values like justice, love, honour, and courtesy, which are universal but can be perceived and practised differently across different cultures.

From this perspective, the passage emphasises that through travel, individuals learn to distinguish between what is local (parochial) and what is universal in terms of values. Therefore, the correct answer to the question: When we meet other people while we travel, we learn to differentiate between local values and universal values. **Hence option C is correct**

34
Answer: a
Explanation:

1. **Assumption 1: Travel leads to an understanding of humans.**
    - The passage suggests that through travel, especially extensive travel where one encounters different cultures and languages, individuals come to understand

the universal aspects of values like justice, love, honor, and courtesy. It implies that exposure to diverse cultures through travel enhances understanding of human commonalities and differences. Therefore, assumption 1 is valid.

2. **Assumption 2: Travel helps those who wish to learn fundamental common values.**
    - The passage explicitly states that one of the greatest gains of travel is learning fundamental common values. It highlights that while these values (such as justice, love, honor, and courtesy) are valid everywhere, their manifestations can differ across cultures. Hence, assumption 2 is valid.
3. **Assumption 3: A person with long experience in travel can resolve differences amongst people.**
    - The passage does not directly support the idea that a person with long experience in travel can resolve differences among people. It emphasizes the understanding gained through travel rather than the ability to actively resolve differences. Therefore, assumption 3 is not directly supported by the passage.

- Assumption 1 and Assumption 2 are valid.
- Assumption 3 is not valid.

35
Answer: d
Explanation:

Let X be a two-digit number 10a + b, where a and b are the digits of X.
Let Y be the number formed by interchanging the digits of X, so Y = 10b + a.
Given:
X+Y =99
Substituting X and Y:
(10a + b) + (10b+ a) = 99
11a + 11b = 99
a +b=9
Possible pairs (a, b) where a + b = 9:

- (1,8)
- (2, 7)
- (3, 6)
- (4, 5)
- (5,4)
- (6, 3)
- (7,2)

Corresponding values of X = 10a + b:

- X = 18
- X = 27
- X = 36
- X = 45

X= 54
- X = 63
- Y = 72
- X = 81

Number of possible values of Xis 8

36
Answer: B
Explanation:
Given: - Weight of 6 boys equals the weight of 7 girls. - Weight of 6 boys equals the weight of 3 men. -
Weight of 6 boys equals the weight of 4 women. -
The average weight of the women is 63 kg.
First, let's denote the total weight by (W). According to the problem, the weight of 4 women is equal
to (W):
[W = 4]
Calculating (W):
[W = 252]
This means: - Total weight of 6 boys = 252 kg - Total weight of 7 girls = 252 kg - Total weight of 3 men
= 252 kg - Total weight of 4 women = 252 kg
Given that the total weight of 6 boys is 252 kg,
1 boy = 42
Hence answer is (b)

37
Answer: a
Explanation:

The hands of a clock coincide 11 times every 12 hours, but not exactly at every hour because the hour hand moves a small amount every minute. However, between 11:00 and 1:00, they only coincide once (at 12:00).

To solve for the number of times the hands coincide between 10:00 AM and 2:00 PM:

1. **Elapsed Time:** We need to find the total elapsed time between 10:00 AM and 2:00 PM. This is 2:00 PM - 10:00 AM = 4 hours.

2. **Minute Hand's Speed:** The minute hand completes a full circle (360 degrees) every 60 minutes.

3. **Hour Hand's Speed:** The hour hand completes a full circle (360 degrees) every 12 hours (720 minutes). It also moves a small amount each minute, but we can ignore this

for this calculation since we're only considering whole hours.

4. **Relative Speed:** We need to find the relative speed at which the minute hand gains on the hour hand. This is the difference between their speeds:

   Relative Speed = Speed of Minute Hand - Speed of Hour Hand Relative Speed = (360 degrees / 60 minutes) - (360 degrees / 720 minutes) Relative Speed = 6 degrees/minute - 0.5 degrees/minute Relative Speed = 5.5 degrees/minute

5. **Time for One Coincidence:** The minute hand needs to gain a full 360 degrees relative to the hour hand for them to coincide again (excluding the starting point at 10:00 AM).

   Time for One Coincidence = (360 degrees) / (Relative Speed) Time for One Coincidence = 360 degrees / (5.5 degrees/minute) Time for One Coincidence = 65.45 minutes (approximately)

6. **Number of Coincidences:** Since we know the total elapsed time (4 hours) and the approximate time for one coincidence (65.45 minutes), we can calculate the number of coincidences within that timeframe (excluding the starting point at 10:00 AM):

   Number of Coincidences = Total Elapsed Time / Time for One Coincidence (rounded down to the nearest whole number) Number of Coincidences = 4 hours * (60 minutes/hour) / 65.45 minutes (rounded down) Number of Coincidences = 240 minutes / 65.45 minutes (rounded down) Number of Coincidences = 3 (rounded down)

Therefore, the hands of the clock coincide 3 times between 10:00 AM and 2:00 PM (at 11:05 AM, 12:10 PM, and 1:15 PM approximately).

So the answer is (a) 3 times.

38
Answer: c
Explanation:
Calendar year of 2025.
Let's suppose 1 January 2025 is Sunday.
Whenever we move to the second year, there is 1 odd day added.
1 January 2026 is Monday.
1 January 2027 is Tuesday.
1 January 2028 is Wednesday
1 January 2029 is Friday. (1 odd day + 1 due to leap year)

1 January 2030 is Saturday
1 January 2031 is Sunday.
Therefore the calendar year for 2031 is the same as 2025.

39
Answer: d
Explanation:

Conditions:

- p, q are distinct positive odd integers.
- r, s are distinct positive even integers.

Statement Analysis:

1. **(p-r)^2 (qs):**
    - (Odd -even)^2(oddx even)
    - Oddx even= even
    - Therefore, (p-r)^2 (qs) is **even**
2. **(q-s)q^2xs**
    - (Odd- even)odd^2 x even
    - Any number multiplied by even gives even
    - Therefore, (q-s)q^ s is**even**
3. **(q + r)^2(p + s):**
    - Odd^2 (odd+ even)
    - Oddx odd
    - Therefore, (q + r)^2(p + s) is **odd**.

40
Answer: c
Explanation:

By using the formula of hour and minute hand of clock.
Angle= (30*H) - (11/2 * M)

Angle = (30x4)- (5.5x 25)
= 120- 137.5
=-17.5

41
Answer: c

Explanation:

The passage discusses the limitations of conventional classroom education, where the emphasis is on fixed duration rather than learning effectiveness. Let's analyze each statement based on the information provided:

1. **In conventional classroom learning, the central goal is duration of learning rather than attainment of competency.**
    - This statement aligns with the passage, which criticizes the focus on fixed duration over ensuring that all learners achieve competency. Learners are subjected to the same set of lectures for the same duration, which may not be effective for everyone.
    - **Logical inference:** The passage criticizes the conventional classroom model for prioritizing fixed duration over ensuring all learners achieve competency. Therefore, statement 1 reflects a logical inference from the passage.
2. **Conventional classrooms encourage one-size-fits-all approach and stamp out all differentiation.**
    - The passage mentions that every learner is subjected to the same set of lectures in the same way for the same duration, leading to variable outcomes where only a few learners shine, some survive, and others are left behind.
    - **Logical inference:** This implies that conventional classrooms do enforce a one-size-fits-all approach, which can stifle differentiation and personalized learning.

- Statement 1 reflects the criticism of prioritizing duration over competency.
- Statement 2 reflects the criticism of a one-size-fits-all approach in conventional classrooms.

42
Answer: d
Explanation:
As a large number of workers in our country are employed in the unorganized sector, India does not need to change its present conventional classroom system of education. This assumption is not valid according to the passage. The passage criticizes the conventional classroom system for its fixed duration and uniform approach, which leads to variable outcomes and leaves many learners behind. It specifically mentions that this system results in low employability among graduates. Therefore, the passage suggests that the conventional classroom system needs to change to improve learning effectiveness and outcomes, regardless of the size of the unorganized sector.
Even with its present conventional classroom system of education, India produces a sufficient number of skilled workers to fully realize the benefits of demographic dividend. This assumption is also not valid according to the passage. The passage states that the conventional classroom system leads to low employability among graduates (10% employability after a decade and a half of education), which implies that the system is not

producing a sufficient number of skilled workers. Therefore, the passage argues against the idea that the current system is sufficient in producing skilled workers to harness the demographic dividend effectively.

43
Answer: a
Explanation:

1. **The adolescent does not feel comfortable with his parents because they tend to be dominating and assertive.**
   This assumption is valid according to the passage. The passage describes a conflict between parents and adolescents where parents are described as having "parental solicitude, which is often a disguise for love of power." This suggests that parents can be perceived as dominating and assertive, which can make adolescents feel uncomfortable and lead them to manage their affairs independently, without confiding in their parents.
2. **The adolescent of modern times does not have much respect for parents.**
   This assumption is not explicitly supported by the passage. The passage primarily discusses the conflict arising due to perceived parental dominance and the tendency of adolescents to handle moral problems independently rather than confide in their parents. It doesn't directly state that adolescents lack respect for their parents in general. Respect and comfort with parental authority are nuanced and can vary widely depending on individual circumstances and cultural contexts.

- Assumption 1 is valid.
- Assumption 2 is not clearly supported.

44
Answer: a
Explanation:

The central idea of the passage can be summarized as follows:

During adolescence, there is often a conflict between parents and their children. This conflict arises because adolescents feel they are capable of managing their own affairs, while parents, driven by parental concern (which can sometimes mask a desire for control), tend to assert their authority over moral issues. However, their approach is often too rigid and dogmatic, leading adolescents to withhold their trust and make their own decisions secretly.

From this summary, the statement that best reflects the central idea of the passage is:

(a) Parents in general may not be of much help when children are on their way to becoming adults.

This option captures the essence of the passage that adolescents often feel they can manage their own affairs and thus may not seek or benefit from parental guidance due to conflicts and the perceived dogmatism of parental advice. Therefore, the answer is a.

45
Answer: b
Explanation:

To determine how many times the digit '5' appears in numbering a 260-page book, we need to count the occurrences in each range of numbers from 1 to 260.

Counting the digit '5':

1. **Units place:** Every set of ten pages (1-10, 11-20, ..., 251-260) will contain exactly one '5' in the units place (5, 15, 25, ..., 255). There are 26 such sets of ten pages in 260 pages, so there are 26 occurrences of '5' in the units place.
2. **Tens place:** For every full set of 100 pages (1-100, 101-200, 201-260), the tens place '5' appears exactly 10 times (50-59, 150-159, 250-259). There are 3 such sets of 100 pages in 260 pages, so there are 3×10=30 occurrences of '5' in the tens place.

Total occurrences:

Total occurrences = Occurrences in units place + Occurrences in ten's Place.

Total occurrences = 26 + 30

Total occurrences = 56

Therefore, the number of fives used in numbering a 260-page book is 56.

46
Answer: b
Explanation:

The given sequence exhibits a repeating pattern where each layer k starts from k down to 1. The length of each layer increases sequentially.

Pattern Breakdown:

- Layer 1: 1
- Layer 2: 1, 2
- Layer 3: 1, 2, 3
- Layer 4: 1, 2, 3, 4
- Layer 5: 1, 2, 3, 4, 5
- ...

Key Observation:

The sum of each layer k is the sum of the first k natural numbers, which can be calculated using the formula:

Sum of layer k = k(k + 1) / 2

Calculating the Sum of the First 28 Terms:

1. **Identify Layers Involved:**
    - Layer 1 (1 term)
    - Layer 2 (2 terms)
    - Layer 3 (3 terms)
    - Layer 4 (4 terms)
    - Layer 5 (5 terms)
    - We need to consider layers up to and including layer 7, which encompasses the first 28 terms.
2. **Calculate Sum of Each Layer:**
    - Layer 1: 1(1 + 1) / 2 = 1
    - Layer 2: 2(2 + 1) / 2 = 3
    - Layer 3: 3(3 + 1) / 2 = 6
    - Layer 4: 4(4 + 1) / 2 = 10
    - Layer 5: 5(5 + 1) / 2 = 15
    - Layer 6: 6(6 + 1) / 2 = 21
    - Layer 7: 7(7 + 1) / 2 = 28

Total Sum: Add the sum of each layer: Sum = 1 + 3 + 6 + 10 + 15 + 21 + 28 = 84

Therefore, the sum of the first 28 terms in the sequence is 84.

47
Answer: d
Explanation:

1. **Relating Prices:**
    - We are given that P is 25% more expensive than R: Price(P) = 1.25 * Price(R)

- R is 20% more expensive than Q: Price(R) = 1.2 * Price(Q)

2. **Combining Relationships:**
   - Substitute the second equation into the first equation to eliminate R: Price(P) = 1.25 * (1.2 * Price(Q)) Price(P) = 1.5 * Price(Q)
3. **Total Cost:**
   - We know the total cost of all three articles (P, Q, and R) is Rs. 3,330.
4. **Representing Prices with Variables:**
   - Let Price(Q) = x (since it's the unknown variable).
   - Then, Price(R) = 1.2x (from equation 2).
   - And, Price(P) = 1.5x (from equation 1).
5. **Setting Up the Equation:**
   - The total cost can be expressed as the sum of the individual prices: Total Cost = Price(P) + Price(R) + Price(Q) 3330 = 1.5x + 1.2x + x
6. **Solving for x (Price of Q):**
   - Combine like terms: 3330 = 3.7x x = 3330 / 3.7 (divide both sides by 3.7) x = 900 (price of article Q)
7. **Finding Price of P:**
   - Now that we know x (price of Q), we can find the price of P using the equation we derived earlier: Price(P) = 1.5 * x Price(P) = 1.5 * 900 Price(P) = Rs. 1350

Therefore, the cost of article P is Rs. 1,350. So the answer is (d) Rs. 1,350.

48
Answer: a
Explanation:
Given that AB and CD are two-digit numbers, their sum 1CE is a three-digit number that starts with the digit 1 . This implies that the sum of B and D must result in a carry-over since the sum of two single-digit numbers cannot directly result in a two-digit number starting with 1 unless there is a carry-over from the units place to the tens place.

Therefore,B+D+1= 10+E , where E is the units digit of the sum.

Now, let's look at the tens place. We have A+C+1=10+C. since there is a carry-over to the hundreds place, giving us the digit 1 in the hundreds place of the sum 1CE.

This simplifies to A+1=10 , which means A =9.

49
Answer: d
Explanation:
To find the number of distinct triplets ((x, y, z)) from the first seven natural numbers satisfying (x > 2y > 3z), we must first identify which values of (x, y,) and (z) meet these conditions.

The seven natural numbers in the set (S) are (1, 2, 3, 4, 5, 6, 7).
We know (z) must be an integer from 1 to 7 since it's a natural number. Let's check possible values for (z), (y), and (x).

(3z = 3)
(2y > 3 y)
Possible values for (y) are (2, 3, 4, 5, 6, 7)
For each (y): - (x > 2y)
Let's evaluate these: - (y = 2 x > 4) (Possible (x): 5, 6, 7) - (y = 3 x > 6) (Possible (x): 7) - (y = 4, 5, 6, 7 x) values will be invalid because they exceed the upper limit 7.
Valid triplets: - ((5, 2, 1), (6, 2, 1), (7, 2, 1), (7, 3, 1))

50
Answer: c
Explanation:

Let's denote the cost of 1 orange, 1 mango, and 1 apple as O, M, and A respectively.
From the given information:
4O + 6M + 8A = 2(1O + 2M + 5A)
4O + 6M + 8A = 2O + 4M + 10A,
2O + 2M = 2A O + M = A

Statement 1: The total cost of 3 oranges, 5 mangoes, and 9 apples is equal to the total cost of 4 oranges, 6 mangoes, and 8 apples.
3O + 5M + 9A = 4O + 6M + 8A
3O + 5M + 9A = 4O + 6M + 8A
O + M = A
Statement 2: The total cost of one orange and one mango is equal to the cost of one apple. O + M = A
Both statements are consistent with the initial equation derived from the total cost of fruits. Therefore, both statements are correct.

51
Answer: b
Explanation:

- Commercial limestone production is not the main focus. The passage emphasizes capturing carbon dioxide. While limestone is a byproduct, the practicality and cost for large-scale production aren't discussed.
- The process doesn't aim to create a new mineral source. It focuses on converting carbon dioxide. Extracting calcium and magnesium isn't mentioned as a goal.

- The passage highlights the use of the acidic mixture to dissolve rocks, not its effectiveness as a general rock-dissolving acid. The focus is on the carbon dioxide conversion.

According to the passage, the successful conversion of carbon dioxide into a more stable form (limestone) by injecting it underground. This suggests the potential for carbon sequestration, which is the capture and storage of atmospheric carbon dioxide to mitigate climate change.

Therefore, option (b) aligns best with the logical and practical implication of the passage. It highlights a potential solution for reducing atmospheric carbon dioxide.

52
Answer: a/c
Explanation:

- The passage states that researchers found melting iceberg water containing iron and nutrients supports "hitherto unexpectedly high levels of phytoplankton growth."
- Phytoplankton is the base of the marine food chain. Increased phytoplankton productivity directly impacts the primary productivity (food production) of the Southern Ocean.
- The passage doesn't explicitly mention climate change, but it highlights the impact on the food chain. Climate change is a complex issue with many contributing factors. Changes in ocean ecosystems, including phytoplankton levels, can be a contributing factor or be affected by climate change.
- The impact on world fisheries is also implied. High levels of phytoplankton support a healthy food chain, which ultimately sustains fish populations. Changes in phytoplankton productivity could potentially impact fisheries in the Southern Ocean and potentially even have a broader effect.

Both assumptions (1 and 2) are supported by the information in the passage. The passage discusses the impact of melting icebergs on a key element (phytoplankton) of the Southern Ocean's food chain, suggesting a potential influence on climate change and world fisheries (though not explicitly stated).

53
Answer: c
Explanation:

- Option a) While the passage mentions caterpillars feeding on corn, it doesn't suggest using them for weed control. It focuses on the chemical interaction between the caterpillar's frass and the corn plant.
- Option (b) The passage doesn't directly link the caterpillar's frass to human medicine or antimicrobials. The focus is on the plant's defense against insects.
- Option (d) Genetic modification isn't mentioned in the passage. The finding is about a natural chemical communication between the caterpillar and the plant.

The key takeaway from the passage is the discovery of a **chemical compound** in the caterpillar's frass that disrupts the corn plant's defense mechanism. This knowledge could be valuable in developing new pesticides that:

- **Mimic** the effect of the frass to control insect pests organically.
- **Are more specific** than traditional pesticides, targeting harmful insects without harming beneficial ones.

Therefore, option (c) aligns best with the logical and practical message of the passage, highlighting the potential for a more sustainable approach to pest control.

54
Answer: c
Explanation:

32^5- The unit digit is 2 and
The cyclicity of 2 is 4 that means after every power of 4 the repetition occurs.
Eg- unit digit of 2^1, 2^5, 2^9 is the same.
Also the unit digit 2^3, 2^7 is also the same.
By using the unit digit of 32^5 and 2^27
2+8=10.
Hence the given expression is divisible by 10.

55
Answer: c
Explanation:

Let's analyse the options:

(a) k = 3:

- If p = 1 and q = 2, then p < q and p + q = 3 (satisfies the condition).

(b) k = 4:

- If p = 1 and q = 3, then p < q and p + q = 4 (satisfies the condition).

(c) k = 5:

  - If p = 1 and q = 4, then p < q and p + q = 5 (satisfies the condition).
  - But also, if p = 2 and q = 3, then p < q and p + q = 5 (another valid solution).

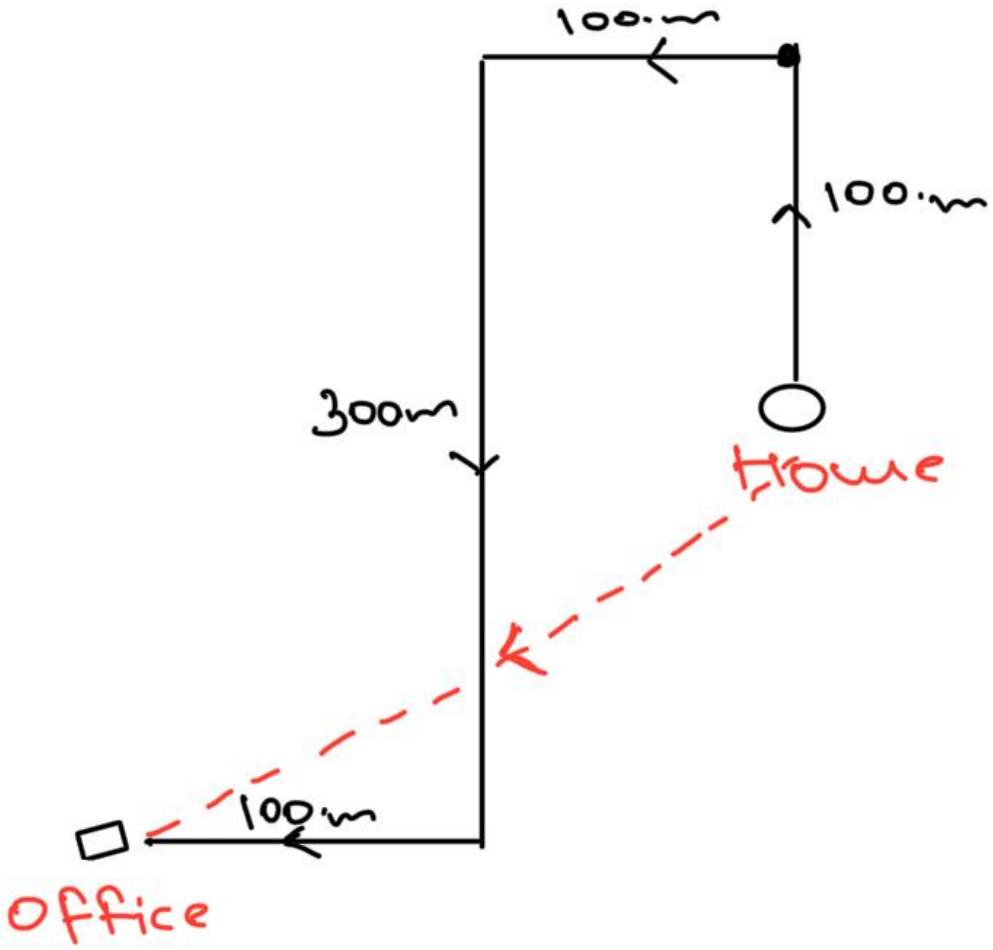
With k = 5, we have two possible unique value combinations for p and q that satisfy the conditions (p < q and p + q = k).This is the smallest value of k that allows for ambiguity.

(d) k = 6 or any higher value:

- As k increases, the possible range for p and q also increases. It becomes more likely to have only one unique solution for p and q that satisfies both conditions.

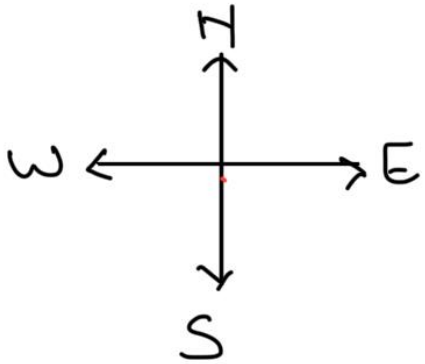
Therefore, the smallest value of k that doesn't determine p and q uniquely is 5 (option c).

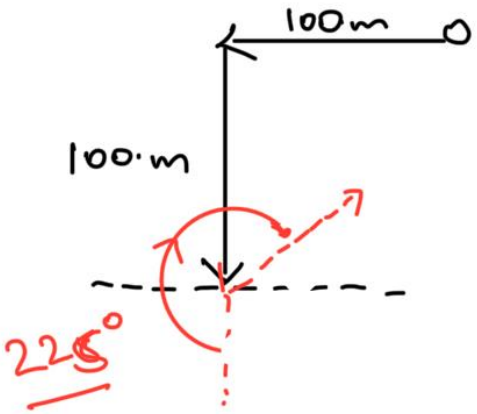
56
Answer: c
Explanation:



It is given that his office is exactly in Northeast direction, so by rotating the image, 180° The initial direction i.e north become South.

57
Answer: d
Explanation:





58
Answer: d
Explanation:

- **Statement:** India is the world's largest producer of milk.
- **Conclusion-I:** India is the world's largest exporter of milk.
- **Conclusion-II:** India does not import milk.

Reasoning:

- Just because India produces the most milk doesn't necessarily mean it exports the most (Conclusion-I). It might consume most of its own production.
- Similarly, being a large producer doesn't preclude the need to import some milk to meet specific demands (Conclusion-II). A country might import a specific type of milk or import during times of shortage.

The statement only provides information about production, not export or import. Therefore, neither conclusion can be definitively drawn based on the given statement alone.

59
Answer: c
Explanation:

Statement I: m + n > mn and m > n Statement II: The product of m and n is 24
From Statement II, we know that the product of m and n is 24. Possible pairs of natural numbers that multiply to 24 are (1, 24), (2, 12), (3, 8), and (4, 6).
Now, let's consider Statement I along with the possible pairs:

1. For (1, 24): 1 + 24 > 1*24 is not true.
2. For (2, 12): 2 + 12 > 2*12 is not true.
3. For (3, 8): 3 + 8 > 3*8 is not true.
4. For (4, 6): 4 + 6 > 4*6 is true.

Therefore, the values of m and n that satisfy both statements are m = 4 and n = 6.
Hence, the correct answer is (c) The Question can be answered by using both the Statements together, but cannot be answered using either Statement alone.

60
Answer: c
Explanation:

- **Statement I**: File size (12 MB) - Doesn't give direct download time.
- **Statement II**: Transfer rate (2.4 KB/s) - Doesn't give direct download time without file size.

Why (c) is correct:

1. We need **both** file size (in KB) and transfer rate (in KB/s) for the download time formula.
2. Statement I requires conversion (MB to KB) using info from Statement II (transfer rate).
3. **Combining both statements** allows conversion and calculation of download time.

Neither statement alone provides the complete info (file size in KB) for direct calculation. We need both for an accurate answer.

61
Answer: a
Explanation:

- (b) The passage doesn't suggest fake news is inherent in a democracy. It emphasises the importance of a responsible media circulating the truth.
- (c) The passage doesn't advocate for unrestricted freedom of expression. It argues for responsible media that accurately reflects reality.
- (d) The passage doesn't claim irresponsibility cannot be controlled. It highlights the importance of a responsible media and the circulation of truth in a robust democracy.

The main point of the passage is that a well-functioning democracy relies on transparency and open communication. This includes:

- Political leaders acknowledge reality, even if inconvenient.
- Social issues being openly discussed and debated.
- The media plays a critical role by accurately representing reality without distortion.

This accurate representation allows for informed public discourse and decision-making, which is essential for a healthy democracy.

62
Answer: d
Explanation:

- The passage discusses the growing trend of interconnected home devices.
- It raises concerns about the potential misuse of consumer data collected by these devices.
- It highlights the risk of corporate marketers using this data for targeted advertising, turning the home into a "corporate storefront."

While the passage acknowledges the comfort and potential benefits of interconnected devices (mentioned briefly), the main focus is on the potential downsides:

- (a) and (b) are not directly addressed in the passage. Increased data collection doesn't necessarily lead to more capital expenditure or directly contribute to overall economic development.
- (c) While the passage doesn't deny the potential convenience, it doesn't focus on this aspect. It prioritises the security and privacy risks.

Therefore, based on the passage's content and focus on potential misuse of data, option (d) is the most logical and rational implication.

63
Answer: c
Explanation:

- Option (a)- The passage doesn't suggest environmental sustainability is entirely opposed to growth. It argues for a rethink of growth strategies to consider environmental limitations.
- Option (b)- The passage doesn't deny the importance of growth for poverty eradication. It suggests that growth needs to be sustainable and include environmental considerations.
- Options (d)- The passage doesn't advocate for accepting environmental degradation. It argues for resource-efficient development to ensure growth that's sustainable and inclusive.

The main point of the passage is that economic growth strategies need to be re-evaluated to consider environmental limitations and resource scarcity. This means prioritising sustainable practices and resource efficiency to achieve growth that benefits everyone, not just a select few, and avoids environmental collapse. This aligns with the concept of "green growth," which emphasises environmentally friendly economic development.

64
Answer: c
Explanation:

- **Statement I**: x / y is odd.
    - This statement tells us that the division of x by y results in an odd number. However, it doesn't tell us the specific values of x and y. There could be multiple combinations of x and y that satisfy this condition.
- **Statement II**: xy = 12
    - This statement tells us that the product of x and y is 12. Again, this doesn't directly give us the unique values of x and y. We can break down 12 into its prime factorization: 12 = 2 x 2 x 3. There are several pairs of natural numbers that can multiply to give 12 (e.g., 1 x 12, 2 x 6, 3 x 4).

Neither statement alone is sufficient to determine the unique values of x and y.

However, by combining the information from both statements:

- We know x / y is odd (Statement I).
- We know xy = 12 (Statement II).

We can analyze the possible pairs of factors of 12 (2 x 2 x 3):

- If x = 1 and y = 12, then x / y (1/12) is not odd, violating Statement I. (Eliminate)
- If x = 2 and y = 6, then x / y (2/6) simplifies to 1/3, which is not odd (Eliminate).
- If x = 3 and y = 4, then x / y (3/4) is odd, satisfying Statement I. Additionally, their product (3 x 4) is 12, satisfying Statement II.

Therefore, using both statements together allows us to identify the unique values of x and y (x = 3 and y = 4) that satisfy both conditions of being distinct natural numbers with an odd division result and a product of 12.

65
Answer: c
Explanation:
x = 4/5 (y + z)

2. y = 2/7 (x + z)

By solving these equations simultaneously.

First, express y in terms of x and z: y = 2/7 (x + z)

Substitute y in the first equation: x = 4/5 (2/7 (x + z) + z)

Simplify inside the parentheses: x = 4/5 (2/7 x + 2/7 z + z) x = 4/5 (2/7 x + 9/7 z) x = 4/5 ((2x + 9z)/7)
x = 4/5 (2/7 x + 2/7 z + z)

x = 4/5 ((2x + 9z)/7)

Rearrange to solve for x:

35x = 8x + 36z

35x - 8x = 36z
27x = 36z
x = 4/5 (2/7 x + 9/7 z)
x = 4/5 (2x + 9z)/7
x = (4(2x + 9z))/35
x = (8x + 36z)/35
x = (36z)/27
x = (4z)/3
Now substitute into y = 2/7 (x + z) x = (4z)/3

Thus, we have the relationships:

To compare x, y, and z:

y = 2/7 ((4z)/3 + z) y = 2/7 ((4z + 3z)/3) y = 2/7 ((7z)/3)

y = (2z)/3

x = (4z)/3

y = (2z)/3

x = (4z)/3

y = (2z)/3

z = z
By this we can say that if X receives 4 unit then Y receives 2 unit and Z receives 3 unit.

66
Answer: d
Explanation:

To find the number of students, we need the total marks scored in the class.

- **Statement-I:** The highest marks in the class are 70 and the lowest marks are 50.

This statement tells us about the range of marks, but it doesn't provide any information about the number of students or the total marks.

- **Statement-II:** Exclusion of highest and lowest marks from the class does not change the average.

This statement is generally true. If you remove an equal amount from the top and bottom of a dataset, the average remains the same. However, it doesn't help us find the total marks or the number of students.

Why Both Statements Are Insufficient:

Even with both statements, we cannot determine the number of students. Statement-I gives us the highest and lowest marks, but not the distribution of marks between them. Statement-II tells us about the average after removing the highest and lowest scores, but we don't know the original total marks.

Example:

- Imagine a class of 2 students (one with 70 and one with 50). The average is 60, which aligns with the question. However, both statements would also hold true (highest = 70, lowest = 50, and removing them wouldn't change the average).
- But, a class of 100 students with an average of 60 could also have a highest score of 70 and a lowest score of 50.

Therefore, even with both statements, we cannot determine the total marks or the number of students in the class definitively.

67
Answer: A
Explanation:

• Possible sets of three primes and their sums:

• 2 + 3 + 5 = 10 (not prime)

• 2 + 3 + 7 = 12 (not prime)

• 2 + 3 + 11 = 16 (not prime)

• 2 + 3 + 13 = 18 (not prime)

• 2 + 3 + 17 = 22 (not prime)

• 2 + 5 + 7 = 14 (not prime)

• 2 + 5 + 11 = 18 (not prime)

• 2 + 5 + 13 = 20 (not prime)

• 2 + 7 + 11 = 20 (not prime)

• 2 + 7 + 13 = 22 (not prime)

• 3 + 5 + 7 = 15 (not prime)

• 3 + 5 + 11 = 19 (prime)

• 3 + 5 + 13 = 21 (not prime)

• 3 + 7 + 11 = 21 (not prime)

From this analysis, we can see that the only set of three distinct primes whose sum is a prime number and less than 23 is 3, 5, 11.

68

Answer: d

Explanation:

(2x + y) is an integer

This statement tells us that (2x + y) is an integer. Let's express this condition mathematically: [2x + y = k] where (k) is an integer.

Rewriting (y):

[y = k - 2x]

Now, consider (x + y):

[x + y = x + (k - 2x) = k - x]

For (x + y) to be an integer, (k - x) must be an integer. (k) is given to be an integer, but (x) is not constrained to integers or any specific form. (x) could be any real number, thus (k - x) may not necessarily be an integer. Hence, Statement I alone does not guarantee that (x + y) is an integer.

Statement II: (x + 2y) is an integer

This statement tells us that (x + 2y) is an integer. Let's express this condition mathematically: [x + 2y = m] where (m) is an integer.

Rewriting (x):

[x = m - 2y]

Now, consider (x + y):

[x + y = (m - 2y) + y = m - y]

For (x + y) to be an integer, (m - y) must be an integer. (m) is given to be an integer, but (y) is not constrained to integers or any specific form. (y) could be any real number, thus (m - y) may not necessarily be an integer. Hence, Statement II alone does not guarantee that (x + y) is an integer.

Combining Both Statements:

From Statement I:

[y = k - 2x]

From Statement II:

[x = m - 2y]

Substitute (y = k - 2x) into (x = m - 2y):

[x = m - 2(k - 2x)]

[x = m - 2k + 4x]

[-3x = m - 2k] [x =]

Since (k) and (m) are integers, (x) must be a rational number of the form ( ). Now, substitute (x =) back into (y = k - 2x):

y = k - 2(2k-m)/3)

y =(2m-k)/3

Thus, (y) must also be a rational number of the form (2m-k)/3.

Now, consider (x + y):

x + y = (2m-k)/3+ (2k-m)/3
= (k+m)/3

For (x + y) to be an integer, (k+m)/3
must be an integer. Since (k) and (m) are unknown integers, without any additional information, we cannot determine whether (k + m) is divisible by 3. Therefore, even both statements together cannot guarantee that (x + y) is an integer.
Thus, the correct answer is:
(d) The Question cannot be answered even by using both the Statements together.

69
Answer: c
Explanation:

- **Statement-I:** The cost of p is not more than that of r. (p ≤ r)
    - This tells us p is either cheaper than r or equal in price to r.
- **Statement-II:** The cost of r is not more than that of p. (r ≤ p)
    - This statement seems redundant at first glance, but it becomes crucial when combined with Statement-I.

Why Both Statements Are Necessary:

1. **Statement-I Alone Insufficient:** It only establishes a relative price range for p and r. We can't determine the exact price of p from p ≤ r.
2. **Statement-II Alone Insufficient:** Similar to Statement-I, it doesn't provide a definitive value for p.
3. **Combining Statements:** The key is to analyze both inequalities together:
    - p ≤ r (from Statement-I)
    - r ≤ p (from Statement-II)

These combined inequalities essentially imply that p = r. Why? Because if p is less than r, the second inequality wouldn't hold true (r wouldn't be less than or equal to p). Similarly, if p is greater than r, the first inequality wouldn't be true. Therefore, for both inequalities to be valid, p must be equal to r.

Using the Combined Information:

We know q = Rs. 16 and p + q + r = Rs. 50. Since p = r, we can rewrite the total cost equation as:

2p + q = 50

Substituting q = 16:

2p + 16 = 50

Solving for p:

2p = 34

p = Rs. 17

By combining the information from both statements, we can determine that p = Rs. 17. Each statement alone doesn't provide enough information, but together they establish a relationship (p = r) that allows us to solve for p using the total cost equation.

Therefore, the correct answer is (c) The Question can be answered by using both the Statements together, but cannot be answered using either Statement alone.

70
Answer: d
Explanation:

- **Statement I**: The sum of the marks scored by P and Q is equal to the sum of the marks scored by R and S.
    - This statement only tells us about the total marks of two pairs (P+Q) and (R+S), but it doesn't provide any information about the individual scores of P, Q, R, or S.
- **Statement II**: The sum of the marks scored by P and S is more than the sum of the marks scored by Q and R.
    - Similar to Statement I, this statement only compares the combined scores of two different pairs (P+S) and (Q+R). It doesn't reveal any information about the relative scores of P and Q.

Even by combining the information from both statements, we cannot determine whether P scored more than Q.

For example, consider the following scenarios:

- Scenario 1: P = 80, Q = 70, R = 60, S = 50.
    - Statement I holds true (80 + 70 = 60 + 50), but P scored more than Q.
- Scenario 2: P = 60, Q = 70, R = 80, S = 50.
    - Statement I holds true (60 + 70 = 80 + 50), but P scored less than Q.
- Scenario 3: P = 75, Q = 75, R = 65, S = 85.

- Statement II holds true (75 + 85 > 75 + 65), but P and Q have the same score.

In all these scenarios, both statements could be true, but they don't tell us anything about the relative scores of P and Q.

71
Answer: d
Explanation:

The most logical and rational message conveyed by the passage is:

(d) In a world of violence, tyranny and bigotry, poetry is a form of dynamic resistance.

- The passage emphasises that unlike science and religion, which often claim absolute truths, poetry embraces the complexities and contradictions of reality.
- It criticises those who use claims of absolute truth to justify power and control (dictatorship and tyranny).
- The passage suggests that poetry offers a way to celebrate the plurality of life (opposing bigotry) and challenge oppressive forces (resistance).

While the passage discusses the limitations of absolute truth claims, it doesn't necessarily say:

- (a) Poetry is the only way to accept imperfections. (Science and religion may also acknowledge human flaws.)
- (b) Poetry is against truth. It emphasises the difference in approach to truth, not opposition.
- (c) Poetry is solely about feelings. The passage doesn't claim this and even talks about resisting power structures.

Therefore, option (d) best captures the essence of the passage by highlighting poetry's role as a form of resistance against negative aspects of the world.

72
Answer: d
Explanation:

Assumption 1: The passage doesn't state that flowers are created for luxury. It simply explains their primary function of attracting insects for pollination.
Assumption 2: The passage doesn't deny the usefulness of flowers as things of beauty. It argues that their beauty is a side effect of their biological purpose, not their primary function.

We find them beautiful because of our conditioning, not because they were designed solely to please us.

73
Answer: d
Explanation:

We need to find the absolute difference between P's and Q's ages.

- **Information Given:**
  - Both ages are between 10 and 100 (inclusive).
  - Interchanging the digits of P's age gives Q's age (e.g., P = 23, Q = 32).
- **Statement-I:** The age of P is greater than the age of Q.

This statement tells us which person is older, but doesn't tell us the difference in their ages.

- **Statement-II:** The sum of their ages is 11/6 times their difference.

This relates the sum and difference of their ages, but it involves an unknown ratio (11/6). Without knowing the actual ages, we can't use this ratio to find the difference.

Challenges with Both Statements:

1. **Statement-I Doesn't Provide Difference:** Knowing who's older doesn't tell us the age gap. P could be 25 and Q could be 23, or P could be 95 and Q could be 90.

2. **Statement-II Requires Age Information:** The 11/6 ratio requires knowing the sum of their ages to calculate the difference. But with only the age range (10-100), we can't determine the sum.

Multiple Possibilities:

There are numerous combinations of ages for P and Q that satisfy the given information. Here are a few examples:

- P = 23, Q = 32 (difference = 9)
- P = 57, Q = 75 (difference = 18)
- P = 84, Q = 48 (difference = 36)

Even with both statements, we cannot definitively determine the difference in their ages. We lack enough information about the specific two-digit numbers representing their ages.

74

Answer: c
Explanation:

Pradeep becomes either a Director or a Producer (or possibly both).
Statement P: Pradeep is a Director.

- This statement implies that Pradeep fulfils at least one possibility mentioned in the Main Statement (becoming a Director). It's logically consistent.

Statement Q: Pradeep is a Producer.

- Similar to statement P, this implies Pradeep fulfils the other possibility mentioned in the Main Statement (becoming a Producer). It's also logically consistent.

Statement R: Pradeep is not a Director.

- This statement doesn't necessarily contradict the Main Statement. Pradeep could still be a Producer.

Statement S: Pradeep is not a Producer.

- Similar to statement R, this doesn't necessarily contradict the Main Statement. Pradeep could still be a Director.

75.
Answer: d
Explanation:

10-30 x 100/50+25= -25.

76.
Answer: d
Explanation:

  - If 2x(S)3y: This translates to "2x is not less than 3y" (x is greater than or equal to 3y/2).
  - 3x(T)4z: This translates to "3x is equal to 4z" (x = 4z/3).
  - 9y/(P)8z: This translates to "9y is greater than 8z" (y > 8z/9).

However, the conclusion (9y/(P)8z) doesn't necessarily follow from the premises. Just because x is greater than or equal to 3y/2 and x is equal to 4z/3, it doesn't guarantee y is greater than 8z/9.

2. Statement 2:

- If x(Q)2y: This translates to "x is less than 2y" (x < 2y).
- y(R)z: This translates to "y is not greater than z" (y <= z).

(x(R)z) translates to "x is not greater than z" (x <= z). While the first premise implies x is less than 2y, the second premise only tells us y is less than or equal to z. There's no guarantee that x will be less than or equal to z based on the given information.

77.
Answer: a
Explanation:

For 'ABCD':
1×2×3×4=24

For 'EFGH':

5×6×7×8=1680

Following the same pattern, we calculate for 'IJKL':

9×10×11×12= 11880

78.
Answer: d
Explanation:

Solve the problem of how "ARENA" is written in the given code, we first need to understand the pattern used to transform the words "POT" to "ATOP" and "TRAP" to "APART".

Let's analyze these transformations:

1. "POT" to "ATOP":
   - The code adds an 'A' at the beginning of the word "POT".
   - Then, it reverses the original word "POT" to get "TOP".
   - Combining these, we get "ATOP".
2. "TRAP" to "APART":
   - The code adds an 'A' at the beginning of the word "TRAP".
   - Then, it reverses the original word "TRAP" to get "PART".
   - Combining these, we get "APART".

Following the same pattern for "ARENA":

1. Start with "ARENA".
2. Add an 'A' at the beginning to get "AARENA".
3. Reverse the original word "ARENA" to get "ANERA".
4. Combine the 'A' at the beginning with the reversed word "ANERA".

Thus, "ARENA" is written as "AANERA".

79
Answer: b
Explanation:

The missing number in the sequence is 155.

Here's the logic behind the sequence:

Each number is the sum of the cube of its position in the sequence, the square of its position, and its position itself.

For example:

- Third position (3): 3^3 + 3^2 + 3 = 27 + 9 + 3 = 39
- Fourth position (4): 4^3 + 4^2 + 4 = 64 + 16 + 4 = 84
- Sixth position (6): 6^3 + 6^2 + 6 = 216 + 36 + 6 = 258

Following the pattern:

- Fifth position (*): 5^3 + 5^2 + 5 = 125 + 25 + 5 = 155

80
Answer: b
Explanation:

Given the equations from the code:
1. Q-S = 25
2. T = R+ S+ 3
And the numbers to be represented by P, Q, R, S, T are 4, 5, 10, 12, 15.
Let's solve the equations to find the values of Q, R, S, and T.
From the first equation:
Q = 35 Given the possible numbers, the only way for Q = 3S to be true, given the numbers 4, 5, 10, 12, 15, is if S = 5 and Q = 15. This is because 15 is the
only number in the given set that is exactly three times another number in the set.

So, S= 5 and Q = 15.
From the second equation:
T = R+ S+ 3
Given S = 5, we have:
T = R+ 8
The possible values for R and T from the remaining numbers 4, 10, 12 are such that when 8 is added to R, T should be a number from the set. The only pair that satisfies this condition is R = 4 and T = 12.
Now, since P is the only letter left, it must represent the remaining number, which is 10.
Therefore:
T = R+ 8 The possible values for R and T from the remaining numbers 4, 10, 12 are such that when 8 is added to R, T should be a number from the set. The only pair that satisfies this condition is R = 4 and T = 12.
Now, since P is the only letter left, it must represent the remaining number, which is 10.
Therefore:
P = 10, R = 4, T = 12
We need to find P + R - T.
P+R-T = 10 + 4 - 12 = 2