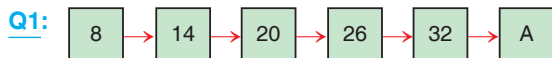


QUESTIONS AND CONCLUSIONS

QUESTIONS 5-6



Which of the following natural numbers should be written in place of A? (1 point)

- A) 34 B) 36 C) 38 D) 40

CONCLUSIONS

Q1: To find the pattern, let's check the difference between consecutive numbers:

- $14 - 8 = 6$
- $20 - 14 = 6$
- $26 - 20 = 6$
- $32 - 26 = 6$

The difference between the numbers is consistently 6. Therefore, to find A, we add 6 to 32:

$$32 + 6 = 38$$

So, $A = 38$.

The correct answer is 38.

SOLUTION IS C

Q2:

$$\begin{array}{r} A B 5 \\ - 6 B C \\ \hline 2 C 6 \end{array}$$

According to the given subtraction, what is the result of $A + C$? (2 points)

- A) 15 B) 16 C) 17 D) 18

CONCLUSIONS

Q2:1. Rightmost column ($5 - C = 6$):

Since 5 minus something results in 6, this indicates that there was borrowing.

So, we treat 5 as 15 (after borrowing from the tens place), and we have:

$$15 - C = 6 \Rightarrow C = 9$$

2. Middle column ($B - B = C$):

After borrowing, B in the top row is reduced by 1. So, the subtraction becomes:

$$(B - 1) - B = 9$$

Therefore, B can be any number. The value of B is not important.

3. Leftmost column ($A - 6 = 2$ after borrowing from A):

Since we borrowed 1 from A, the equation becomes:

$$(A - 1) - 6 = 2 \Rightarrow A = 9$$

Now we know:

- $A = 9$
- $B = 8$
- $C = 9$

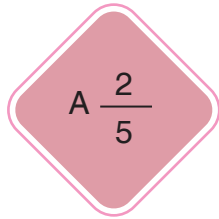
Finally, we calculate $A + C$:

$$A + C = 9 + 9 = 18$$

So, the correct answer is 18.

SOLUTION IS D

Q3:



The mixed number above is converted into an improper fraction, resulting in $\frac{37}{5}$.

What is the value of A? (3 points)

- A) 7 B) 8 C) 9 D) 10

CONCLUSIONS

Q3: A mixed number is converted to an improper fraction using the formula:

Improper fraction = $A \times \text{denominator} + \text{numerator}$

In this case:

$$\frac{37}{5} = A \times 5 + 2$$

Let's solve for A:

Start with the equation:

$$37 = A \times 5 + 2$$

Subtract 2 from both sides:

$$37 - 2 = A \times 5$$

$$35 = A \times 5$$

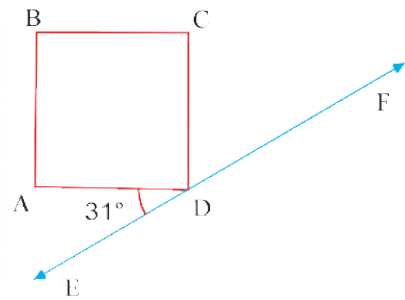
Divide both sides by 5:

$$A = \frac{35}{5} = 7$$

Thus, the value of A is 7.

SOLUTION IS A

Q4:



ABCD is a square, and the angle (\widehat{ADE}) measures 31° . Points E, D, and F are collinear (lie on the same line).

What is the measure of $m(\widehat{CDF})$? (4 points)

- A) 31° B) 59° C) 69° D) 90°

CONCLUSIONS

Q4: We have a square ABCD, and the angle (\widehat{ADE}) is given as 31° . Points E, D, and F are on a straight line. We need to find the angle (\widehat{CDF}) .

In a square, all four corners are 90° . So, (\widehat{ADC}) , which is one corner of the square, is 90° .

You know that (\widehat{ADE}) is 31° . Since E, D, and F are in a straight line, (\widehat{EDF}) forms a straight angle, which means it equals 180° . We can subtract the sum of angles ADE and ADC from the straight angle of 180° to find the remaining angle at (\widehat{CDF}) :

$$(\widehat{ADE}) + (\widehat{ADC}) = 31^\circ + 90^\circ = 121^\circ$$

$$(\widehat{CDF}) = 180^\circ - 121^\circ = 59^\circ$$

SOLUTION IS B

Q5:



After Brian drives 10% of his journey, he has 45 km left to go.

Based on this information, how many kilometers is Brian's total journey? (5 points)

- A) 50 km B) 55 km
C) 60 km D) 70 km

CONCLUSIONS

Q5: We know that after Brian drives 10% of his journey, he still has 45 kilometers left to go. That means the 45 kilometers represents the remaining 90% of the journey.

To find the total distance, we can think of the journey in parts. If 90% of the journey is 45 kilometers, then 10% of the journey must be:

$$\frac{45}{9} = 5 \text{ kilometers}$$

Now, if 10% of the journey is 5 kilometers, we can find the total distance by multiplying 10% by 10 to get 100% (the full journey):

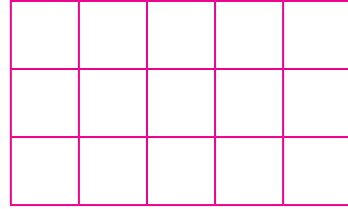
$$5 \times 10 = 50 \text{ kilometers}$$

So, the total journey is 50 kilometers.

The correct answer is A.

SOLUTION IS A

Q6:



In the figure composed of equal squares, the total length of the line segments of equal length is 190 cm.

What is the area of this rectangular shape? (6 points)

- A) 375 cm² B) 350 cm²
C) 325 cm² D) 300 cm²

CONCLUSIONS

Q6: Since the total length of the line segments is 190 cm and there are 38 line segments, the length of each side of the square is:

$$\frac{190}{38} = 5 \text{ cm}$$

So, each side of a square is 5 cm.

The rectangle consists of:

- 3 squares tall (height),
- 5 squares wide (width).

Each square has sides of 5 cm, so:

The total height of the rectangle is: $3 \times 5 = 15 \text{ cm}$

The total width of the rectangle is: $5 \times 5 = 25 \text{ cm}$.

The area of the rectangle is given by multiplying the width by the height:

$$\text{Area} = \text{height} \times \text{width} = 15 \text{ cm} \times 25 \text{ cm} = 375 \text{ cm}^2$$

The area of the rectangle is 375 cm², so the correct answer is A.

SOLUTION IS A

Q7:



The price of 4 kilograms of apples is equivalent to the price of either 3 kilograms of bananas or 5 kilograms of tomatoes.

Based on this, what is the ratio of the price of 1 kilogram of tomatoes to the total price of 1 kilogram of bananas and 1 kilogram of apples? (7 points)

- A) $\frac{20}{27}$ B) $\frac{12}{35}$ C) $\frac{15}{22}$ D) $\frac{12}{37}$

CONCLUSIONS

Q7: Let's denote:

- The price of 1 kilogram of apples as a
- The price of 1 kilogram of bananas as b
- The price of 1 kilogram of tomatoes as t

From the problem, we know:

$4a = 3b$ (The price of 4 kg of apples equals the price of 3 kg of bananas),

$4a = 5t$ (The price of 4 kg of apples equals the price of 5 kg of tomatoes).

Step 1: Find the price of 1 kilogram of bananas and tomatoes

- From $4a = 3b$, we can solve for b : $b = \frac{4a}{3}$
- From $4a = 5t$, we can solve for t : $t = \frac{4a}{5}$

Step 2: Calculate the total price of 1 kilogram of apples and 1 kilogram of bananas

The total price of 1 kilogram of apples and 1 kilogram of bananas is:

$$a + b = a + \frac{4a}{3} = \frac{3a}{3} + \frac{4a}{3} = \frac{7a}{3}$$

Step 3: Find the ratio of the price of 1 kilogram of tomatoes to the total price of 1 kilogram of bananas and apples

Now, we need to find the ratio $\frac{t}{a + b}$:

$$\frac{t}{a + b} = \frac{\frac{4a}{5}}{\frac{7a}{3}} = \frac{4a}{5} \times \frac{3}{7a} = \frac{12}{35}$$

Thus, the correct answer is B.

SOLUTION IS B