BPSC AEDO Paper 3

Q.1 **Salil got an increase of 4% in his sales amount in the first year and 24% in the second year also with this, his current sales are Rs. 1,61,200, what was his sales in two years ago?**

A. Rs. 1,05,000
B. Rs. 1,30,000
C. Rs. 1,25,000
D. Rs. 1,55,000

Answer: C

Sol: **Given:**

Salil's sales increased by 4% in the first year and 24% in the second year.

His current sales = ₹1,61,200

Find: Sales two years ago (original amount).

Formula Used:

Successive percentage increase →

Final Value = Original Value × (1 + Increase_1) × (1 +Increase_2)

Solution:

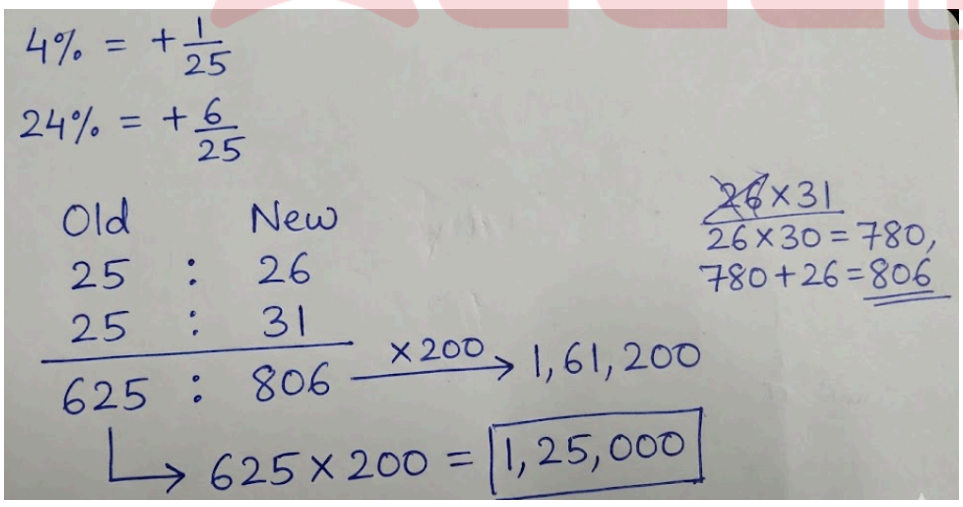
From the formula;

161200 = Original Value × $\left(1+\frac{4}{100}\right)\times\left(1+\frac{24}{100}\right)$

Original Value = 161200 × $\left(\frac{100}{104}\right)\times\left(\frac{100}{124}\right)$

Original value = ₹1,25,000

Alternate Solution:



Q.2 **If the price of an item increased from ₹3,135 to ₹4,389, what is the percentage change?**

A. 40% decrease
B. 25% increase
C. 40% increase
D. 20% increase

Answer: C

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Sol: **Given:**

Initial price = ₹3,135

Final price = ₹4,389

Formula Used:

Percentage Change = $\frac{\text{Final Price} - \text{Initial Price}}{\text{Initial Price}} \times 100$

Solution:

Percentage Change = $\frac{4389 - 3135}{3135} \times 100$

= $\frac{1254}{3135} \times 100 = 40\%$

The percentage change is 40%.

Q.3 **By selling 6 buttons for a rupee, a man loses 45%. To gain 10% how many must he sell for a rupee?**

A. 2
B. 4
C. 3
D. 5

Answer: C

Sol: **Given:**

Selling 6 buttons for ₹1 gives a 45% loss.

Find how many buttons must be sold for ₹1 to earn 10% profit.

Formula Used:

Loss% = $\frac{CP - SP}{CP} \times 100$

Profit% = $\frac{SP - CP}{CP} \times 100$

Solution:

Let CP of 1 button = C

Given 6 buttons sold for ₹1 →

SP per button = $\frac{1}{6}$

Loss = 45%

$\frac{C - \frac{1}{6}}{C} = 0.45$

$C - \frac{1}{6} = 0.45C$

$0.55C = \frac{1}{6}$

$C = \frac{1}{6 \times 0.55}$

$C = \frac{1}{3.3} = \frac{10}{33}$

Now for 10% profit:

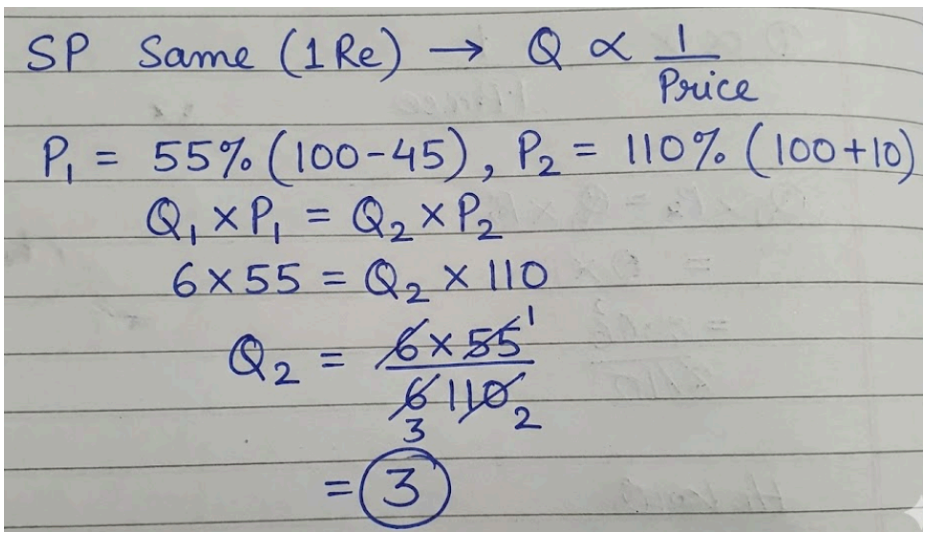
SP = 1.10C = $1.10 \times \frac{10}{33} = \frac{11}{33} = \frac{1}{3}$

So SP per button must be ₹1/3

If each button sells for ₹1/3, number of buttons per rupee:

Buttons = $\frac{1}{1/3}$ = 3 buttons per rupee

Alternate Solution (Short Trick):



Q.4 **A person purchased a gift article for Rs. 1,800 after getting 20 discount. Find the marked price of the gift article.**

A. Rs. 2,500
B. Rs. 2,250
C. Rs. 2,800
D. Rs. 2,150

Answer: B

Sol: **Given:**

Purchased price = Rs. 1800 after 20% discount

Formula Used:

Selling Price (SP) = MP × (100 − Discount)%

Solution:

1800 = MP × 0.80

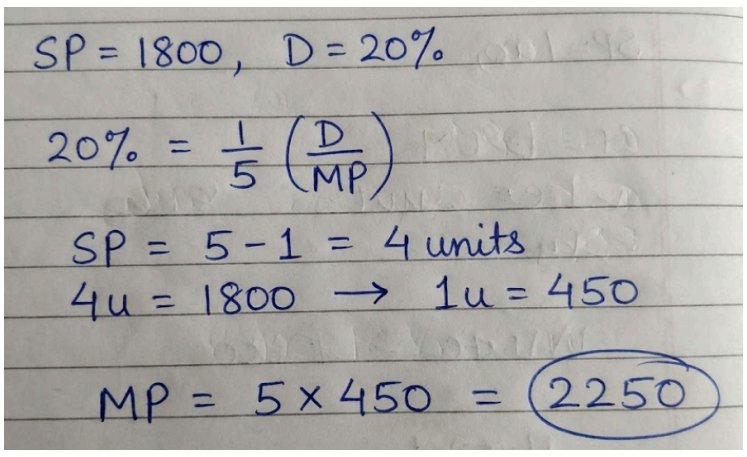
MP = 1800 ÷ 0.80

MP = 1800 × (100/80)

MP = 1800 × 1.25

MP = Rs. 2250

Alternate Solution:



Q.5 A shopkeeper lists the price of a fan at 36 above its cost price and offers a 25% discount on its list price. If he earns a profit of Rs.171, then what is the list price (in Rs.) of the fan?

A. 11,406
B. 11,547
C. 11,628
D. 11,598

Answer: C

Sol: **Given:**
List price is ₹36 above CP; 25% discount on list price; profit = ₹171

Formula Used:

Selling Price (SP) = MP × (100 – Discount)%

Profit = SP – CP = 171

Solution:

Let CP = x

Then MP = x + 36

Discount = 25%

So SP = 0.75(x + 36)

Given:

SP – CP = 171

=> 0.75(x + 36) – x = 171

=> 0.75x + 27 – x = 171

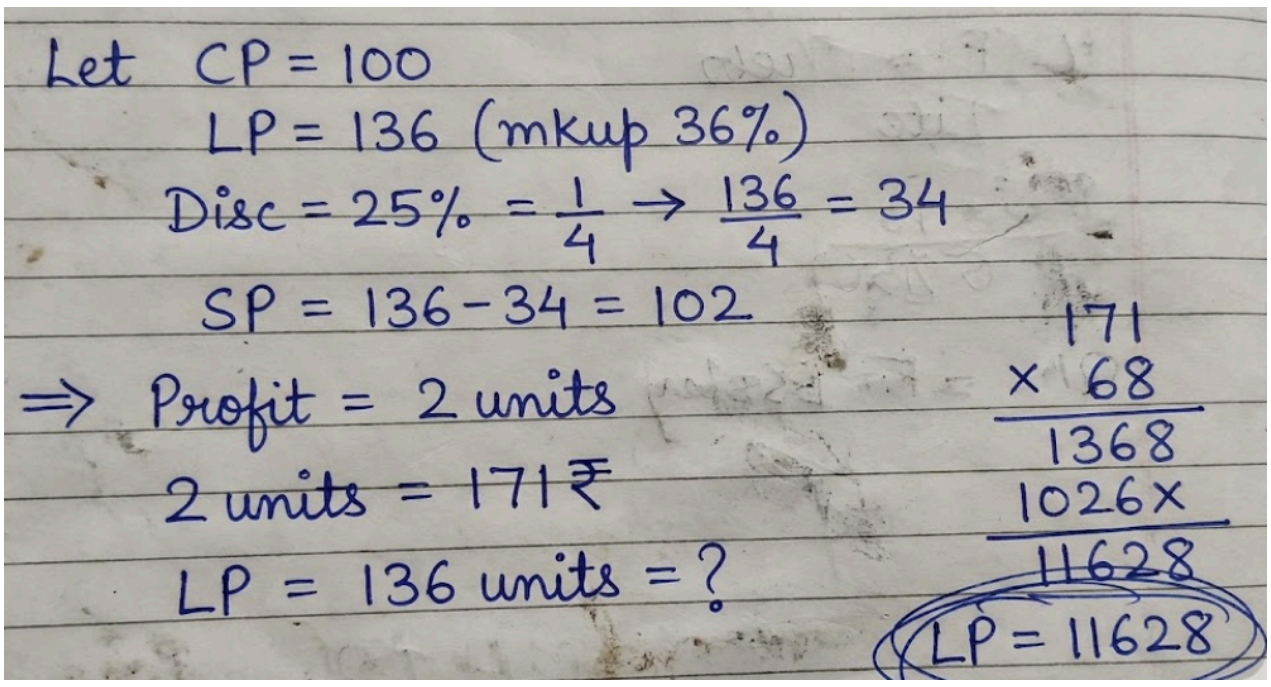
=> –0.25x = 144

=> x = 576

Thus,

MP = x + 36 = 576 + 36 = ₹612

Alternate Solution:



Q.6 **A dealer runs a scheme offering buy 5 items and get 2 items free. Each item is priced at Rs. 250. What is the total discount amount for a customer buying under this scheme?**

A. Rs. 500
B. Rs. 700
C. Rs. 750
D. Rs. 600

Answer: A

Sol: **Given:**

Scheme: Buy 5 items, get 2 items free.

Price per item = Rs. 250.

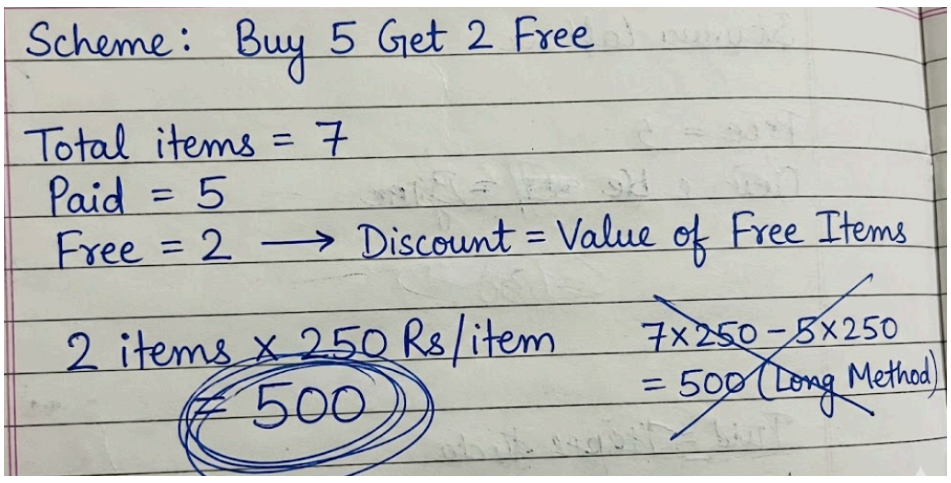
Concept Used:

Free items => discount = (number of free items × price per item)

Solution:

Discount = 2 × 250 = Rs. 500

Alternate Solution(Trick):



Q.7 **The average weight in kg of a family of five members whose weights are 40 kg, 49 kg, 56 kg, 76 kg and 35 kg is**

A. 53.2
B. 52.2
C. 50.2
D. 51.2

Answer: D

Sol: **Given:**
Weights of 5 members: 40, 49, 56, 76, 35 kg.

Concept Used:

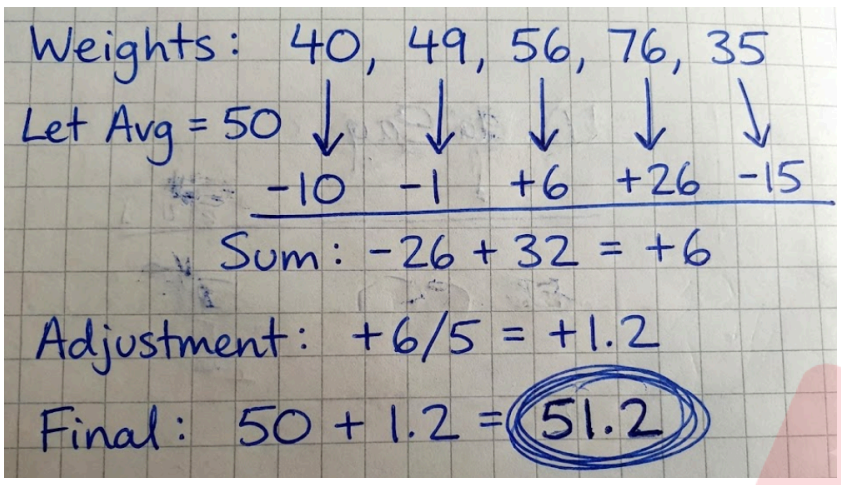
Average = (Sum of quantities) / (Number of quantities)

Solution:

Sum = 40 + 49 + 56 + 76 + 35 = 256

Average = 256 / 5 = 51.2 kg

Alternate Solution (Short Trick):



Q.8 **The average of first 171 even numbers is**

A. 172
B. 173
C. 172.5
D. 171.5

Answer: A

Sol: **Given:**
Find the average of the first 171 even numbers.

Concept Used:

Average of first n even numbers = (n + 1).

Solution:

For n = 171:

Average = 171 + 1 = 172

Alternate Solution (Short Trick):

First even numbers are 2, 4, 6, ...

Average = (first + last) / 2 = (2 + 342) / 2 = 344 / 2 = 172

Q.9 **The average weight (in kg) of a family of five members whose weights are 40 kg, 49 kg, 56 kg, 74 kg and 35 kg is:**

A. 50.8
B. 49.8
C. 52.8
D. 51.8

Answer: A

Sol: **Given:**
Weights of 5 family members: 40 kg, 49 kg, 56 kg, 74 kg, 35 kg

Concept Used:

Average = (Sum of observations) / (Number of observations)

Solution:

Sum of weights = 40 + 49 + 56 + 74 + 35 = 254

Average weight = $\frac{254}{5}$ = 50.8 kg

Q.10 In an examination, the marks obtained by 6 students are 76, 68, 79, 84, 88 and 85. The average score of the group is:

A. 60
B. 80
C. 85
D. 90

Answer: B

Sol: **Given :**
Marks = 76, 68, 79, 84, 88, 85

Formula Used :
$$\text{Average} = \frac{\text{Sum of observations}}{\text{Number of observations}}$$

Solution :

Sum of marks:
76 + 68 + 79 + 84 + 88 + 85 = 480

Number of students = 6

$$\text{Average} = \frac{480}{6} = 80$$

Q.11 The average of first 169 even numbers is

A. 170
B. 171
C. 169.5
D. 170.5

Answer: A

Sol: **Given:**
First 169 even numbers: 2, 4, 6, ...

Need to find their average.

Concept Used:

Average of an arithmetic progression = $\frac{\text{first term} + \text{last term}}{2}$

nth even number = 2n

Solution:

169th even number = 2 × 169 = 338

Average = $\frac{2 + 338}{2}$

= $\frac{340}{2}$ = 170

Thus, the average of the first 169 even numbers is 170.

Q.12 Find the mean proportional of 98 and 18.

A. 39
B. 45
C. 42
D. 44

Answer: C

Sol: **Given:**
Find the mean proportional of 98 and 18.

Formula Used:

If x is mean proportional between a and b,

then $x^2 = a \times b$.

$x = \sqrt{(a \times b)}$

Solution:

$x = \sqrt{(98 \times 18)}$

$= \sqrt{(1764)}$

= 42

Q.13 The mean proportional between 7 and 63 is:

A. 52
B. 441
C. 17
D. 21

Answer: D

Sol: **Given :**
Two numbers = 7 and 63

Formula Used :

Mean proportional between a and b is:
$\sqrt{ab}$

Solution :
Mean proportional = $\sqrt{7 \times 63}$
= $\sqrt{441}$
= 21

Q.14 **If the third proportional of 9 and 60 be x, then what is the value of x?**

A. 398
B. 400
C. 402
D. 401

Answer: B

Sol: **Given:**
First number = 9

Second number = 60

Third proportional = x

Formula Used:

$\frac{a}{b} = \frac{b}{x} \quad => \quad x = \frac{b^2}{a}$

Solution:

x = $\frac{60^2}{9} = \frac{3600}{9} = 400$

Thus, the value of x = 400

Q.15 **If 3 is added to two numbers, the ratio is 4 : 5 and if the same number is subtracted from the two numbers, the ratio is 1 : 2. The numbers are:**

A. 5 and 7
B. 7 and 5
C. 1 and 2
D. 4 and 5

Answer: A

Sol: **Given:**
If 3 is added to two numbers, their ratio becomes 4 : 5.
If the same number 3 is subtracted from the two numbers, the ratio becomes 1 : 2.

Solution:

Let the numbers become 4k and 5k after adding 3.

So original numbers = 4k − 3 and 5k − 3.

After subtracting 3, the numbers become:
4k - 6 and 5k - 6
Given their ratio = 1 : 2:
$\frac{4k-6}{5k-6} = \frac{1}{2}$

2(4k - 6) = 5k - 6
8k - 12 = 5k - 6
3k = 6

k = 2

Numbers:
4k - 3 = 8 - 3 = 5
5k - 3 = 10 - 3 = 7

Q.16 In a village, if the ratio of men to women is 3 : 2, then the percentage of men in the village is:

A. 80%
B. 60%
C. 90%
D. 70%

Answer: B

Sol: **Given :**
Ratio of men : women = 3 : 2

Formula Used :

$$\text{Percentage of men} = \frac{\text{Men}}{\text{Total}} \times 100$$

Solution :
Total parts = 3 + 2 = 5

$$\text{Percentage of men} = \frac{3}{5} \times 100 = 60\%$$

Q.17 Which of the following ratios is the greatest?

A. 37 : 76
B. 43 : 65
C. 35 : 72
D. 50 : 60

Answer: D

Sol: **Given:**
37 : 76
43 : 65
35 : 72
50 : 60
Formula Used:
Ratio = First number ÷ Second number
Solution:
Ratio = 37 ÷ 76 => Ratio = 0.4868
Ratio = 43 ÷ 65 => Ratio = 0.6615
Ratio = 35 ÷ 72 => Ratio = 0.4861
Ratio = 50 ÷ 60 => Ratio = 0.8333
50: 60 is the greatest ratio!!

Q.18 A telephone bill coats Rs. 11 for 2 minutes 30 seconds. What is the cost (in rupees) for 3 minutes 20 seconds? (Round up to one decimal)

A. 14.6
B. 14.5
C. 14.7

D. 14.8

Answer: C

Sol: **Given:**

Cost for 2 minutes 30 seconds = Rs. 11

We need to find the cost for 3 minutes 20 seconds.

Formula Used:

$$\frac{\text{Cost 1}}{\text{Time 1}} = \frac{\text{Cost 2}}{\text{Time 2}}$$

Solution:

2 minutes 30 seconds = 2 × 60 + 30 = 150 seconds

3 minutes 20 seconds = 3 × 60 + 20 = 200 seconds

$$\frac{11}{150} = \frac{X}{200}$$

$$\frac{11}{3} = \frac{X}{4}$$

$$X = \frac{11 \times 4}{3} = \frac{44}{3} = 14.67$$

Q.19 **In an examination Sunita scored 90% of what Anita scored, while Anita's score was 110% of what Vinita scored. If Sunita scored 198 marks in the examination, how many marks did Vinita score?**

A. 220
B. 180

C. 200
D. 242

Answer: C

Sol: **Given:**

Sunita scored 90% of what Anita scored.

Anita's score was 110% of what Vinita scored.

Sunita's score = 198 marks.

Solution:
Let:

Anita's score = A.

Vinita's score = V.

From the given information:

Sunita’s score = 90% × Anita’s score

198 = 0.90 × A (Equation 1)

Anita’s score = 110% × Vinita’s score

A = 1.10 × V (Equation 2)

From Equation 1:

$$A = \frac{198}{0.90} = 220$$

Now, substitute A = 220 into Equation 2:

220 = 1.10 × V

$$V = \frac{220}{1.10} = 200$$

Vinita scored 200 marks.

Q.20 **A town had 1,60,000 inhabitants in 2021. Its population declines at a rate of 5% per annum. What will be its population in 2024?**

A. 99,000
B. 1,16,640
C. 1,00,000
D. 1,37,180

Answer: D

Sol: **Given:**

Initial population (2021) = 1,60,000

Decline rate = 5% per annum

Time period = 2024 - 2021 = 3 years

Formula Used:

Population after t years = $P_0 \times (1 - \frac{r}{100})^t$

Where:

P_0 = initial population

r = rate of decline

t = time period (in years)

Solution:

$P_0 = 1$,60,000

r = 5%

t = 3

Population in 2024 = $1,60,000 \times (1 - \frac{5}{100})^3$

Population in 2024 = $1,60,000 \times (0.95)^3$

Population in 2024 = 1,60,000×0.857375

Population in 2024 = 1,37,180

The population in 2024 will be approximately 1,37,180.

Q.21 **The monthly incomes of two friends Sachin and Chetan, are in the ratio 5 : 7 respectively and each of them saves ₹96000 every month. If the ratio of their monthly expenditure is 2 : 3, find the monthly income of Sachin(in ₹).**

A. 672000
B. 479000
C. 480000
D. 481000

Answer: C

Sol: **Given:**

Sachin's monthly income : Chetan's monthly income = 5 : 7

Sachin's monthly expenditure : Chetan's monthly expenditure = 2 : 3

Savings of each = ₹96000

Formula used:

Income = Expenditure + Savings

Solution:

Let Sachin's income = 5x and Chetan's income = 7x
Let Sachin's expenditure = 2y and Chetan's expenditure = 3y

For Sachin:
Income = Expenditure + Savings
5x = 2y + 96000
y = $\frac{(5x - 96000)}{2}$

For Chetan:
Income = Expenditure + Savings
7x = 3y + 96000

Put y = $\frac{(5x - 96000)}{2}$

$$7x = 3\left[\frac{(5x - 96000)}{2}\right] + 96000$$

$$7x = \frac{(15x - 288000)}{2} + 96000$$

$$7x = \frac{(15x - 288000 + 192000)}{2}$$

$$7x = \frac{(15x - 96000)}{2}$$

$$14x = 15x - 96000$$

$$x = 96000$$

Sachin's monthly income = 5x = 5 × 96000 = ₹480000

Q.22 **Consider the following information and answer the questions based on it.**
150 people from a locality commute daily for work. Out of them 25 travel only by bus, 40 only by train, 20 take both taxi and train, 30 use only

private cars, 25 take bus and taxi and the remaining travel only by taxi.
In all, how many people use taxi to commute?

A. 55
B. 30
C. 45
D. 35

Answer: A

Sol: **Given:**
Total people = 150

Only Bus = 25

Only Train = 40

Both Taxi and Train = 20

Only Private Cars = 30

Bus and Taxi = 25

Solution:

Total = (Only Bus) + (Only Train) + (Both Taxi and Train) + (Only Private Cars) + (Bus and Taxi) + (Only Taxi)

Only Taxi = Total − (All Other Categories)

Total Taxi Users = (Only Taxi) + (Bus and Taxi) + (Taxi and Train)

25 + 40 + 20 + 30 + 25 = 140

Only Taxi = 150 – 140 = 10

10 (Only Taxi) + 25 (Bus and Taxi) + 20 (Taxi and Train) = 55

Q.23 **Consider the following information and answer the questions based on it.**
150 people from a locality commute daily for work. Out of them 25 travel only by bus, 40 only by train, 20 take both taxi and train, 30 use only private cars, 25 take bus and taxi and the remaining travel only by taxi.
What is the percentage of people who use only one mode of transport?

A. 75%
B. 63.2%
C. 50%
D. 70%

Answer: D

Sol: **Given:**
Total people = 150

Only Bus = 25

Only Train = 40

Only Private Cars = 30

Solution:

Total Taxi Users = (Only Taxi) + (Bus and Taxi) + (Taxi and Train)

25 + 40 + 20 + 30 + 25 = 140

Only Taxi = 150 – 140 = 10

People using only one mode = 25(Bus) + 40(Train) + 30(Private Cars) + 10(Taxi) = 105

Percentage = $\left(\frac{105}{150}\right) \times 100 = 70\%$

Q.24 **If a student's marks were increased by 25%, he would have scored 75 in his test How much did he actually score?**

A. 60
B. 50
C. 15
D. 25

Answer: A

Sol: **Given:**

Increase = 25%

Solution:

Increase in marks by 25% means;

100 + 25% = 75

125% = 75

So,

25% = 15

100% = 60

Q.25 **The population of a district is 372000, out of which 168000 are males. 20% of the population is literate. If 20% males are literate, then what percentage of females are literate?**

A. 20%
B. 23%
C. 18%
D. 19%

Answer: A

Sol: **Given:**

Total population of the district = 372,000

Males in the district = 168,000

20% of the population is literate.

20% of the males are literate.

We need to find the percentage of females who are literate.

Solution:

Literate Population = 20% × 372,000 = 0.20 × 372,000 = 74,400

Literate Males = 20% × 168,000 = 0.20 × 168,000 = 33,600

Literate Females = 74,400 - 33,600 = 40,800

Total Females = 372,000 - 168,000 = 204,000

Percentage of Literate Females = $\frac{40,800}{204,000} \times 100 = 20\%$

Thus, 20% of females are literate

Q.26 **Four prime numbers are arranged in ascending order. The product of first three numbers is 255 and the product of last three numbers is 1955. The largest prime number is**

A. 23
B. 17
C. 31
D. 29

Answer: A

Sol: **Given**

Four prime numbers in ascending order.
Product of first three = **255**
Product of last three = **1955**
Formula used
Largest prime = (product of last three) ÷ (product of middle two)
Solution
Step 1: Factor 255
255 = 17 × 15
15 = 3 × 5
So the first three primes (in ascending order) are:
3, 5, 17
Thus, the middle two primes are **5 and 17**, and their product is:
5 × 17 = 85
Step 2: Find the largest prime
Largest prime = 1955 ÷ 85
Check:
85 × 23 = 1955
So the largest prime is **23**.
The correct option is (A) 23

Q.27 **The LCM of the numbers 3.8 and 0.052 is:**

A. 49.4
B. 0.494
C. 4.94
D. 494

Answer: A

Sol: **Given:**

Find the LCM of 3.8 and 0.052.

Formula Used:

If numbers are $a/10^m$ and $b/10^n$, then

LCM = LCM(a, b) / 10^m where m is max(decimal places).

Solution:

3.8 = $\frac{38}{10} = \frac{380}{100}$

0.052 = $\frac{52}{1000}$

Prime factors:

380 = $2^2 \times 5 \times 19$

52 = $2^2 \times 13$

LCM = $2^2 \times 5 \times 19 \times 13$

= $4 \times 5 \times 247$

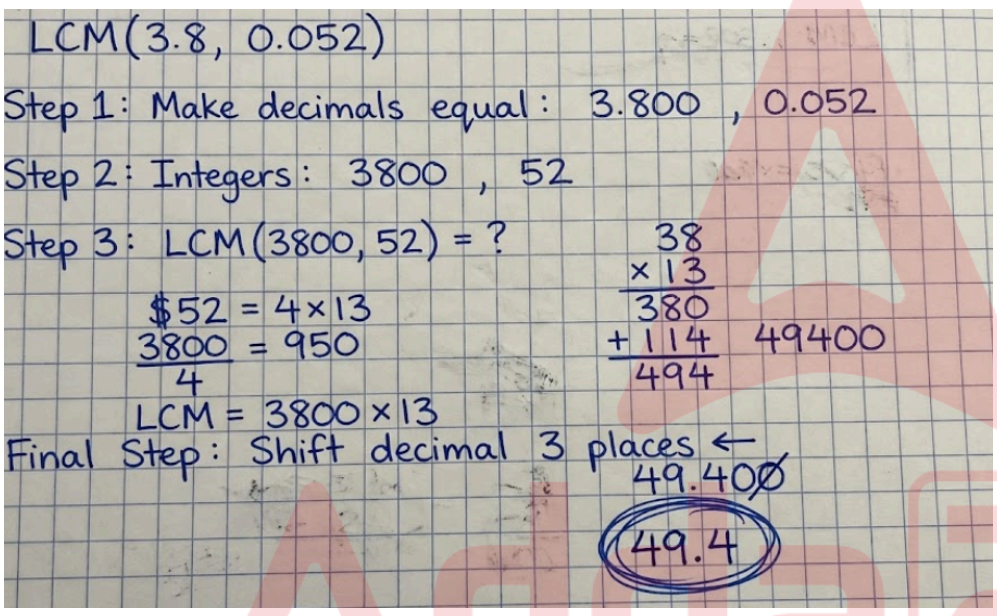
= $20 \times 247 = 4940$

So LCM of the fractions:

LCM = $\frac{4940}{1000}$

= 49.4

Alternate Solution (Short Trick):



Q.28 **The LCM of $3^3 \times 8^2 \times 13$, $3^2 \times 13^2 \times 16$ and $8^3 \times 13^2 \times 16^2$ is:**

A. $3^3 \times 8^3 \times 13^2 \times 16^2$
B. $3^3 \times 8^2 \times 13^2 \times 16$
C. $3^2 \times 8^3 \times 13 \times 16^2$
D. $3^2 \times 8^2 \times 13^2 \times 16^3$

Answer: A

Sol: **Given:**

We must find the LCM of the following expressions:

$3^3 \times 8^2 \times 13$

$3^2 \times 13^2 \times 16$

$8^3 \times 13^2 \times 16^2$

Solution:

$3^3 \times 8^2 \times 13$

$3^2 \times 13^2 \times 16$

$8^3 \times 13^2 \times 16^2$

Taking highest powers of each number

For (3): highest is 3^3

For (13): highest is 13^2

For (8): highest is 8^2

For (16): highest is 16^2

LCM = $3^3 \times 8^3 \times 13^2 \times 16^2$

Q.29 Express $0.16\bar{5}$ as a vulgar fraction.

A. $\frac{165}{99}$
B. $\frac{165}{990}$
C. $\frac{164}{990}$
D. $\frac{164}{99}$

Answer: C

Sol: **Given:**
$0.16\bar{5}$

Concept Used:

$0.a\bar{bc} = \frac{abc - a}{990}$

Solution:

$0.16\bar{5}$

$= \frac{165 - 1}{990}$

$= \frac{164}{990}$

Q.30 What is the H.C.F. of 4/9, 10/21 and 20/63 ?

A. 4/189
B. 2/63
C. 6/63
D. None of these

Answer: B

Sol: **Given:**
$\frac{4}{9}, \frac{10}{21}, \frac{20}{63}$

Formula used:

HCF of fractions $= \dfrac{\text{HCF of numerators}}{\text{LCM of denominators}}$

Solution:

Numerators: 4, 10, 20 $\Rightarrow$ HCF = 2

Denominators: 9, 21, 63

$9 = 3^2, \quad 21 = 3 \times 7, \quad 63 = 3^2 \times 7$

$\text{LCM}(9, 21, 63) = 3^2 \times 7 = 63$

HCF of fractions = $\dfrac{2}{63}$

Correct answer is (B) $\dfrac{2}{63}$

Q.31 If the product of two numbers is 4941 and their LCM is 81, then their HCF is:

A. 60
B. 59
C. 35
D. 61

Answer: D

Sol: **Given:**

The product of two numbers = 4941

The LCM of the two numbers = 81

Formula Used:

HCF = $\dfrac{\text{Product of the two numbers}}{\text{LCM}}$

Solution:

HCF = $\dfrac{4941}{81} = 61$

Q.32 A number, when increased by 60%, gives 3580. The number is

A. 4475
B. 6712.5
C. 2237.5
D. 1118.75

Answer: C

Sol: **Given:**

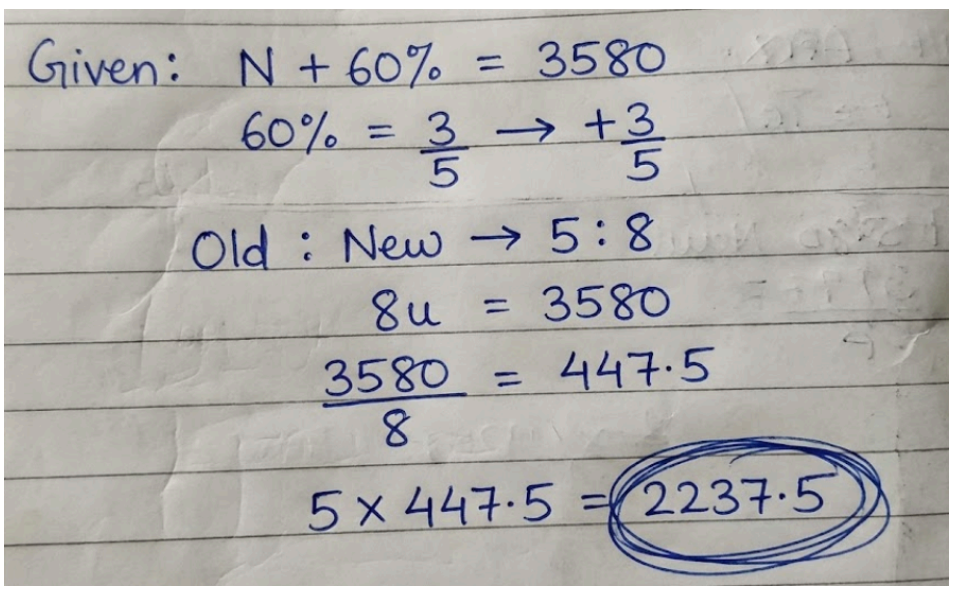
A number increased by 60% becomes 3580.

Solution:

60% increase → final = 160% = $\dfrac{160}{100} = \dfrac{8}{5}$

Number = 3580 × $\dfrac{5}{8}$ = 2237.5

Alternate Solution (Short Trick):



Q.33 Simplify $x(3x - 7) + 7(x^2 - 4) + 18$

A. $10x^2 - 7x - 10$
B. $-10x^2 - 7x - 10$
C. $10x^2 - 7x + 10$
D. $-10x^2 - 7x + 10$

Answer: A

Sol: **Given:**

$x(3x - 7) + 7(x^2 - 4) + 18$

Solution:

$x(3x - 7) + 7(x^2 - 4) + 18$

$= 3x^2 - 7x + 7x^2 - 28 + 18$

$= 10x^2 - 7x - 10$

Q.34 Evaluate : $(-9) - (-60) \div (-12) + (-2) \times 8$

A. - 30
B. - 32
C. - 29
D. - 33

Answer: A

Sol: **Given:**

$(-9) - (-60) \div (-12) + (-2) \times 8$

Concept Used:

Operation preference wise	**Symbol**
Brackets	[], {}, ()
Orders, of	^{x} (power), √ (root), of

Division	÷
Multiplication	×
Addition	+
Subtraction	-

Solution:

(-9) – (-60) ÷ (-12) + (-2) × 8

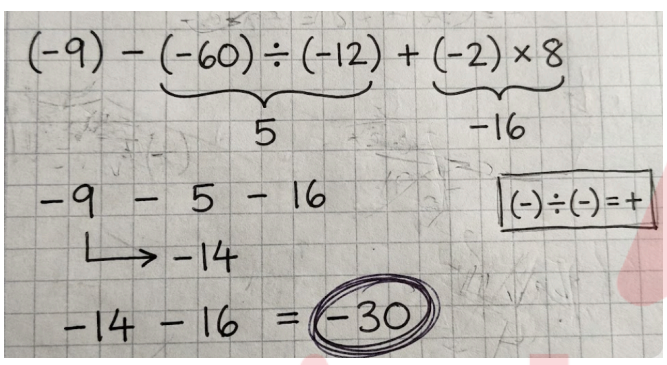
= (-9) – (5) + (-2) × 8

= (-9) – (5) + (-16)

= -14 +(-16)

= -30

Alternate Solution:



Q.35 Simplify the following.
$9 \times (19 \times (4^2)) \div 14 + 13 - 86$

A. 856/7
B. 852/7
C. 853/7
D. 857/7

Answer: D

Sol: **Given:**
$9 \times (19 \times (4^2)) \div 14 + 13 - 86$

Concept Used:

Operation preference wise	**Symbol**
Brackets	[], {}, ()
Orders, of	^{x} (power), √ (root), of

Division	÷
Multiplication	×
Addition	+
Subtraction	-

Solution:

$9 \times (19 \times (4^2)) \div 14 + 13 - 86$

$= 9 \times \frac{152}{7} + 13 - 86$

$= \frac{1368 + 91 - 602}{7}$

$= \frac{857}{7}$

Q.36 Find the value of $(25 \times 13) \times \left\{2 \div 2 \times \frac{(16 - 13)}{3}\right\}$

A. 344
B. 313
C. 325
D. 312

Answer: C

Sol: **Given:**

$(25 \times 13) \times \left\{2 \div 2 \times \frac{(16 - 13)}{3}\right\}$

Concept Used:

Operation preference wise	**Symbol**
Brackets	[], {}, ()
Orders, of	^{x} (power), √ (root), of
Division	÷
Multiplication	×

Addition	+
Subtraction	-

Solution:

$$(25 \times 13) \times \left\{2 \div 2 \times \frac{(16-13)}{3}\right\}$$

$$= (325) \times \{2 \div 2 \times 1\}$$

$$= (325) \times \{1 \times 1\}$$

$$= 325$$

Q.37 **A sum of money triples itself at a certain rate of compound interest in 5 years. In how many years will it amount to 9 times of itself?**

A. 11 years
B. 7 years
C. 10 years
D. 19 years

Answer: C

Sol: **Given:**

A sum of money becomes 3 times in 5 years at compound interest.

Find: Time required for it to become 9 times.

Formula Used:

A = $P(1+r)^t$

Solution:

Given:

$(1+r)^5 = 3$

We need time (T) such that:

$(1+r)^T = 9$

But

9 = 3^2

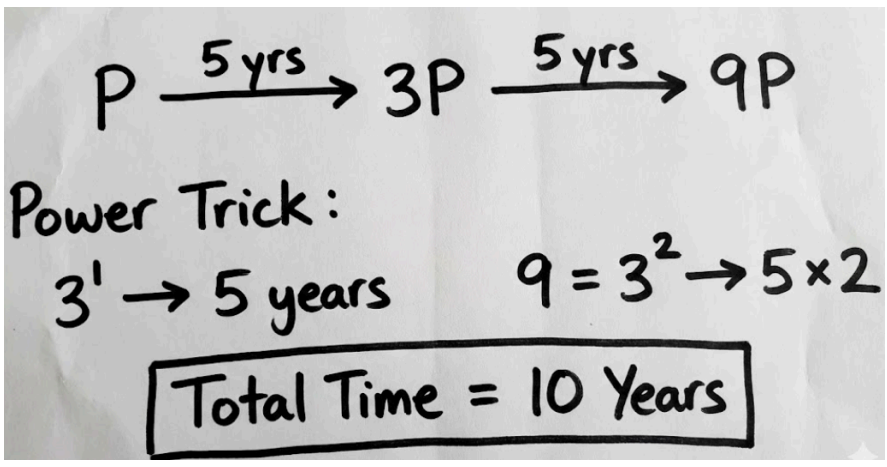
So,

$(1+r)^T = (1+r)^{2\times5}$

Thus,

T = 10 years

Alternate Solution:



Q.38 Sapna invested Rs. 20,300 on simple interest, partly at 10% per annum and partly at 4 per annum. If she earns equal interests from the two investments after 4 years, then find the sum invested at 10 per annum (in Rs.)

A. 5,801
B. 5,800
C. 5,799
D. 5,797

Answer: B

Sol: **Given:**

Total investment = 20,300; part invested at 10% p.a., part at 4% p.a.

Simple interest from both parts is equal after 4 years.

Formula Used:

Simple Interest: SI = $\frac{P \times R \times T}{100}$

Solution:

Equal interests => $P_1R_1 = P_2R_2$ (since T is same).

$P_1 \times 10 = P_2 \times 4$

$P_1 + P_2 = 20300$

From equal interest condition:

$10P_1 = 4P_2$

$P_2 = \frac{10}{4}P_1 = \frac{5}{2}P_1$

Now use total investment:

$P_1 + \frac{5}{2}P_1 = 20300$

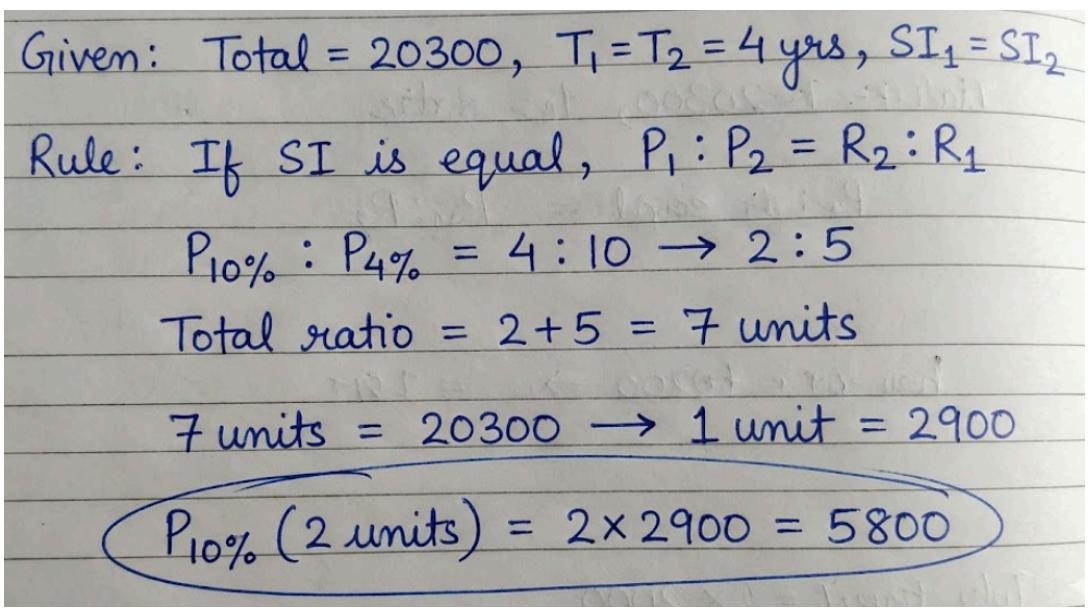
$\frac{7}{2}P_1 = 20300$

$P_1 = \frac{20300 \times 2}{7}$

$P_1 = 5800$

Thus, amount invested at 10% per annum = Rs. 5800

Alternate Solution (Short Trick):



Q.39 Find the simple interest (in ₹) if a sum of ₹400 is borrowed for 5.5 years at 12% per annum rate of interest.

A. 364
B. 264
C. 314
D. 244

Answer: B

Sol: **Given:**

Principal (P) = ₹400

Time (T) = 5.5 years

Rate (R) = 12% per annum

Formula Used:

SI = $\frac{P \times R \times T}{100}$

Solution:

$SI = \frac{400 \times 12 \times 5.5}{100}$

$= 4 \times 12 \times 5.5$

$= 48 \times 5.5 = 264$

Simple Interest = ₹264

Q.40 A, B and C started a business investing Rs. 610, 630 and Rs. 1,450, respectively. If Bs share in the profit earned by them is Rs. 591. what is the difference (in Rs.) the profit in earned by A and C?

A. Rs. 785
B. Rs. 786
C. Rs. 791
D. Rs. 788

Answer: D

Sol: **Given:**

A, B, C invest: 610, 630, 1450

B's profit share = 591

Find difference between A's profit and C's profit.

Concept Used:

Profit is divided in the ratio of investments.

Solution:

Investment ratio:

A : B : C = 610 : 630 : 1450

= 61 : 63 : 145

Let total profit = P

B's share:

$591 = \frac{63}{269}P$

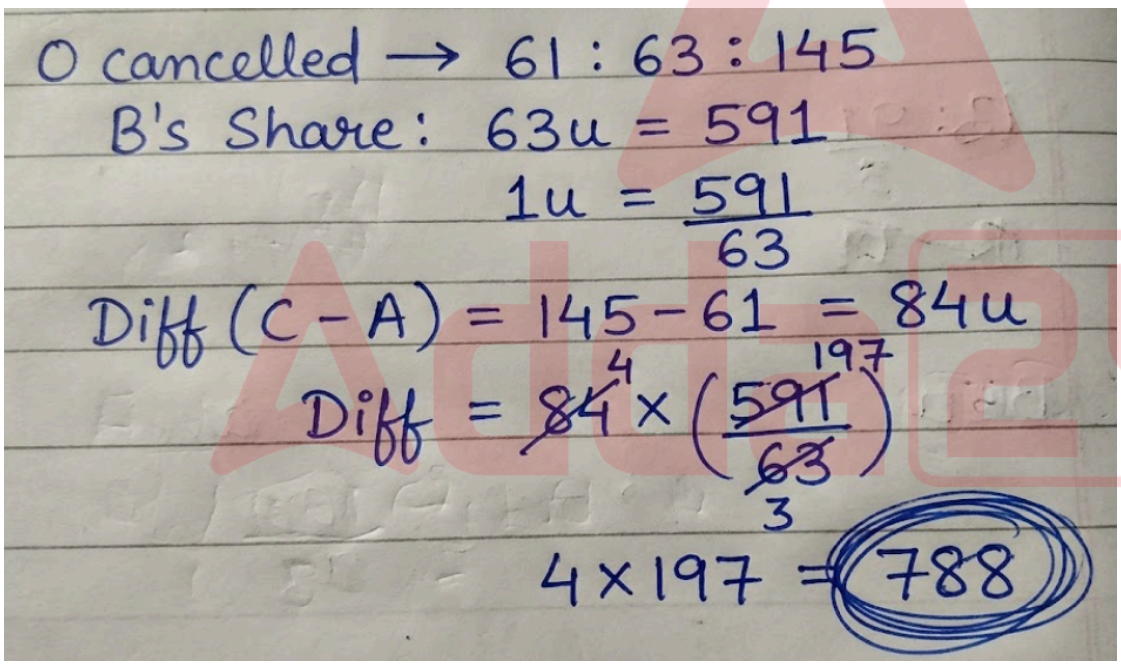
$P = \frac{197 \times 269}{21}$

A's profit: $\frac{197 \times 61}{21} = \frac{1207}{21}$

C's profit: $\frac{197 \times 145}{21} = \frac{28565}{21}$

Difference = $\frac{28565}{21} - \frac{12017}{21} = \frac{16548}{21} = 788$

Alternate Solution (Short Trick):



Q.41 **Rekha, Sanjay, and Poonam invest ₹1,320, ₹1,170, and ₹1,660, respectively, to start a business. If the profit at the end of the year is ₹1,010, then what is the share of Poonam in the profit?**

A. ₹407
B. ₹405
C. ₹402
D. ₹404

Answer: D

Sol: **Given:**

Rekha's investment = ₹1,320

Sanjay's investment = ₹1,170

Poonam's investment = ₹1,660

Total profit = ₹1,010

Concept Used:

Profit is divided in the ratio of investments (same time period).

Solution:

the ratio of investments

1320 : 1170 : 1660

= 132 : 117 : 166

Total of ratio terms:

= 132 + 117 + 166 = 415

Poonam's share = $\frac{166}{415} \times 1010$

= $166 \times \frac{1010}{415}$

= ₹404

Q.42 **M and N start a business. M invests ₹68,000 more than N for 4 months and N invests for 7 months. M's share is ₹856 more than that of N, out of a total profit of ₹6,848. Find the capital contributed by M.**

A. ₹1,22,400
B. ₹1,22,000
C. ₹1,23,000
D. ₹1,23,400

Answer: A

Sol: **Given:**
M invests ₹68,000 more than N.

M invests for 4 months, N invests for 7 months.

Total profit = ₹6,848.

M's share is ₹856 more than N's share.

Find M's capital.

Concept Used:

Partnership: Profit is divided in the ratio of (Capital × Time).

Solution:

Let N's share = P, then M's share = P + 856

P + (P + 856) = 6848

2P + 856 = 6848

2P = 5992

P = 2996

So,

N's share = ₹2,996

M's share = ₹2,996 + ₹856 = ₹3,852

Profit ratio:

M : N = 3852 : 2996 = 9 : 7

Now,

$$\frac{C_M \times 4}{C_N \times 7} = \frac{9}{7}$$

$$7 \times 4C_M = 9 \times 7C_N$$

$$28C_M = 63C_N$$

Also given:

$$C_M = C_N + 68000$$

Substitute (C_M):

$$28(C_N + 68000) = 63C_N$$

$$28C_N + 28 \times 68000 = 63C_N$$

$$28 \times 68000 = 63C_N - 28C_N = 35C_N$$

$$C_N = \frac{28 \times 68000}{35} = 54400$$

Now,

$C_M = C_N$ + 68000 = 54400 + 68000 = 122400

Therefore, M's capital = ₹1,22,400.

Q.43 **Rahul, Monika, and Yuvraj invest ₹1,310, ₹1,430, and ₹1,040, respectively, to start a business. If the profit at the end of the year is ₹1,890, then what is the share of Yuvraj in the profit?**

A. ₹519
B. ₹523
C. ₹520
D. ₹522

Answer: C

Sol: **Given:**

Rahul's investment = ₹1,310

Monika's investment = ₹1,430

Yuvraj's investment = ₹1,040

Total profit = ₹1,890

Concept Used:

In a partnership (same time period), profit is divided in the ratio of their investments.

Solution:

Ratio of investment:

1310 : 1430 : 1040

= 131 : 143 : 104

Total parts in ratio = 131 + 143 + 104 = 378

Yuvraj's share = $\frac{104}{378} \times 1890$ = 520

Thus, Yuvraj's share in the profit = ₹520

Q.44 **Anjani can do a certain piece of work in 30 days. Anjani and Khusbhu can together do the same work in 16 days, and Anjani, Khushbu and Sushmita can do the same work together in 15 days. IN how many days can Ajani and Sushmita do the same work?**

A. 85/4
B. 80/3
C. 73/5
D. 81/3

Answer: B

Sol: **Given:**

Anjani alone = 30 days

Anjani + Khushbu = 16 days

Anjani + Khushbu + Sushmita = 15 days

Find: Time taken by Anjani + Sushmita

Formula Used:

Work rate = $\frac{1}{\text{time}}$

Solution:

Let total work = 1 unit

Anjani's rate: A = $\frac{1}{30}$

Anjani + Khushbu: A + K = $\frac{1}{16}$

Khushbu = (A + K) − A

= $\frac{1}{16} - \frac{1}{30} = \frac{7}{240}$

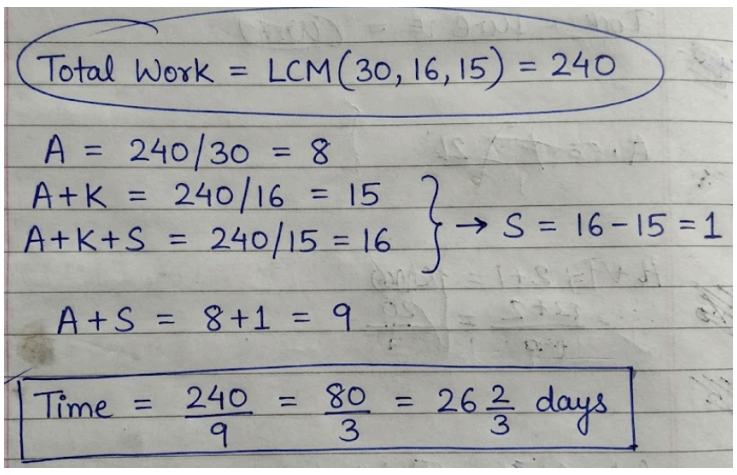
Sushmita = (A+K+S) − (A+K)

= $\frac{1}{15} - \frac{1}{16} = \frac{1}{240}$

A + S = $\frac{1}{30} + \frac{1}{240} = \frac{9}{240}$

Time = $\frac{240}{9} = \frac{80}{3} = 26\frac{2}{3}$ days

Alternate Solution:



Q.45 A man goes to Indore from Bhopal at a speed of 12 km/hr and returns to Bhopal at speed of 24 km/hr, through the same route. What is his average speed in km/hr of the entire journey?

A. 12
B. 21
C. 16
D. 11

Answer: C

Sol: **Given:**
Speed from Bhopal to Indore = 12 km/hr, return speed = 24 km/hr.

Formula Used:

Average Speed = $\frac{2xy}{x+y}$

where x = 12 and y = 24

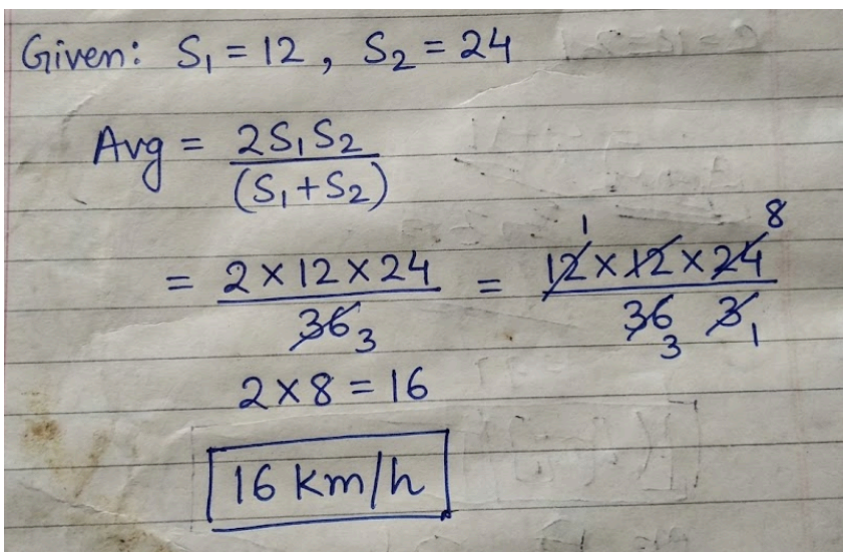
Solution:

Average Speed = $\frac{2 \times 12 \times 24}{12+24}$

= $\frac{576}{36}$

= 16 km/hr

Alternate Solution (Short Trick):



Q.46 Two school vans start from a bouse at an interval of 8 minutes and travel with a speed of 25 kmsh . With how much speed (km/hr.) should a woman coming from the opposite direction towards the house travel, to meet the vans at an interval of 4 minutes?

A. 25
B. 27
C. 26
D. 24

Answer: A

Sol: **Given:**

Two school vans start from a house 8 minutes apart.

Speed of vans = 25 km/h

Solution:

Woman's speed be x km/h.

Relative speed between van and woman = 25 + x km/h

Two vans are 8 minutes apart → $\frac{8}{60} = \frac{2}{15}$ hours

She meets them every 4 minutes → $\frac{4}{60} = \frac{1}{15}$ hours

Distance between the vans = Speed × Time =

= $25 \times \frac{2}{15} = \frac{50}{15}\ \mathrm{km}$

This same distance is covered by the woman in $\frac{1}{15}$ hr at relative speed 25 + x:

= $((25 + x) \times \frac{1}{15} = \frac{50}{15} => 25 + x = 50 => x = 25$

Q.47 A can lay railway track between two given stations in 21 days and B can do the same job in 15 days. With the help of C, they did the job in 2 days only. Then, C alone can do the job in

A. $8\frac{16}{27} days$
B. $2\frac{16}{27} days$
C. $10\frac{16}{27} days$
D. $12\frac{16}{27} days$

Answer: B

Sol: **Given:**

A can do the work = 21 days

B = 15 days

A + B + C = 2 days

Find: Time taken by C alone.

Formula Used:

Work Rate = $\frac{1}{\text{Time}}$

Solution:

A's 1-day work = $\frac{1}{21}$

B's 1-day work = $\frac{1}{15}$

Together with C they do = $\frac{1}{2}$

Now,

$$\frac{1}{21}+\frac{1}{15}+\frac{1}{C}=\frac{1}{2}$$

$$\frac{5}{105}+\frac{7}{105}+\frac{1}{C}=\frac{1}{2}$$

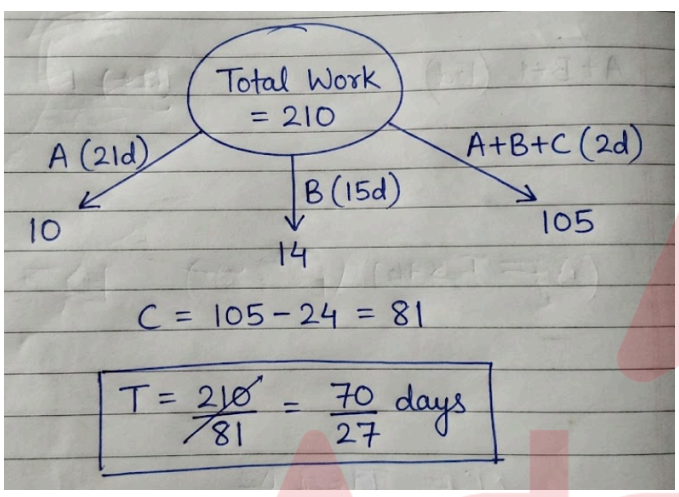
$$\frac{4}{35}+\frac{1}{C}=\frac{1}{2}$$

$$\frac{1}{C}=\frac{1}{2}-\frac{4}{35}$$

$$\frac{1}{C}=\frac{35}{70}-\frac{8}{70}=\frac{27}{70}$$

$$C=\frac{70}{27}=2\frac{16}{27}\text{ days}$$

Alternate Solution:



Q.48 A milkma has 15 litres drum with 9 litres milk. He filled the drum with water and now takes out $\frac{1}{2}$ litres of the mixture. What is the quantity of milk (in millilitres) in the mixture taken out?

A. 250
B. 266
C. 300
D. 333

Answer: C

Sol: **Given :**

Total capacity of drum = 15 L
Milk = 9 L
Water added = 15 − 9 = 6 L
Mixture taken out = $\frac{1}{2}$ L = 0.5 L

Formula Used :

Milk taken out = (Milk ratio in mixture) × (Mixture taken out)

Solution :

$$\text{Milk Ratio}=\frac{\text{Milk}}{\text{Total Mixture}}=\frac{9}{15}$$

$$\text{Milk in 0.5 L taken out} = \frac{9}{15} \times 0.5$$

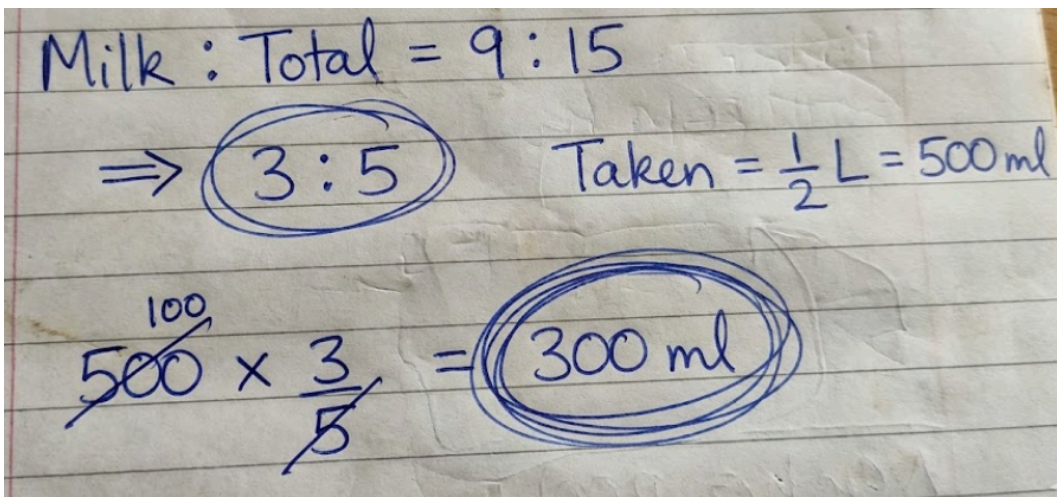
$$= \frac{3}{5} \times 0.5$$

$$= 0.3 \text{ L}$$

Convert to millilitres:

$$0.3 \text{ L} = 300 \text{ mL}$$

Exam Hall Method:



Q.49 **In what ratio tea of Rs. 90 per kg should be mixed with tea of Rs. 120 per kg so that on selling the mixture at Rs. 132 per kg there is a profit of 20 percent?**

A. 2 : 3
B. 1 : 2
C. 1 : 4
D. 1 : 3

Answer: B

Sol: **Given :**
Price of tea 1 = ₹90/kg
Price of tea 2 = ₹120/kg
Selling price of mixture = ₹132/kg
Profit = 20%

Formula Used :

$$\text{Cost Price of mixture} = \frac{\text{SP}}{1 + \frac{Profit}{100}}$$

Ratio = (H - M) : (M - L)

Solution :

Find cost price of mixture

$$\text{CP} = \frac{132}{1.20} = 110 \text{ per kg}$$

Apply alligation

Ratio = (120 - 110) : (110 - 90)
= 10 : 20 = 1 : 2

Q.50 If a $a^4 + b^4 = -a^2b^2$, then $a^6 - b^6 = ?$

A. 1
B. 0
C. −1
D. 2

Answer: B

Sol: **Given :**
$a^4 + b^4 = -a^2b^2$

Solution :
$a^4 + a^2b^2 + b^4 = 0$

$$\left(\frac{a^2}{b^2}\right)^2 + \left(\frac{a^2}{b^2}\right) + 1 = 0$$

Let,
$t = \frac{a^2}{b^2}$

Equation becomes:
$t^2 + t + 1 = 0$

Solve the quadratic:

$$t = \frac{-1 \pm \sqrt{1-4}}{2}$$

$$= \frac{-1 \pm i\sqrt{3}}{2}$$

These are cube roots of unity (excluding 1), so

$t^3 = 1$

Thus,
$\left(\frac{a^2}{b^2}\right)^3 = 1$

$\frac{a^6}{b^6} = 1$

$a^6 = b^6$

Therefore,
$a^6 - b^6 = 0$

Q.51 **In a certain code language, 'we are here' is written as 'yt bg ji' and 'you know we' is coded as 'kl bg gb'. How is 'we' coded in that language?**

A. gb
B. yt
C. ji
D. bg

Answer: D

Sol: **Given:**
"we are here" → yt bg ji
"you know we" → kl bg gb

we are here → yt **bg** ji

you know **we** → kl **bg** gb

So, code for 'we' is '**bg**.'
Thus, correct option is (d).

Q.52 If in a certain language MADRAS is coded a NBESBT, how is BOMBAY coded in that language?

A. CPNCBX
B. CPNCBZ
C. CPOCBZ
D. CQOCBZ

Answer: B

Sol: **Given:**
MADRAS → NBESBT, BOMBAY → ?

1	2	3	4	5	6	7	8	9	10	11	12	13
A	B	C	D	E	F	G	H	I	J	K	L	M
Z	Y	X	W	V	U	T	S	R	Q	P	O	N
26	25	24	23	22	21	20	19	18	17	16	15	14

Logic: Each letter +1
MADRAS → NBESBT
M + 1 → N
A + 1 → B
D + 1 → E
R + 1 → S
A + 1 → B
S + 1 → T
Now, applying the same pattern to BOMBAY:
B + 1 → C
O + 1 → P
M + 1 → N
B + 1 → C
A + 1 → B
Y + 1 → Z
So, BOMBAY is coded as **CPNCBZ**.
Thus, correct option is (b).

Q.53 In a certain code language, 'EACH' is coded as '3015' and 'ARCH' is coded as '0138'. What is the code for 'R' in the given code language?

A. 8
B. 1
C. 5
D. 0

Answer: A

Sol: **Given:**
EACH → 3015
ARCH → 0138
E A C H → 3 0 1 5

A R C H → 0 1 3 8

So, code of R ia 8.
Thus, correct option is (a).

Q.54 In a certain code language, 'PAID' is coded as '7642' and 'INKS' is coded as '1537'. What is the code for 'I' in the given code language?

A. 4
B. 7
C. 1

D. 2

Answer: B

Sol: **Given:** 'PAID' is coded as '7642' and 'INKS' is coded as '1537'.

P A I D → 7 6 4 2

I N K S → 1 5 3 7

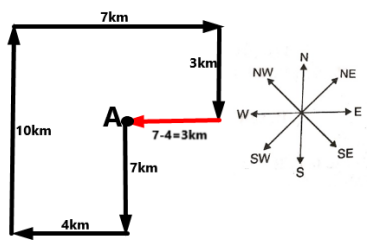
Each letter has a fixed digit; the common letter I will have the same digit in both codes.
Common letter: I and Common digit in both codes: 7
Thus, the correct option is **(B) 7.**

Q.55 **Ravi starts from Point A and drives 7 km towards the south. He then takes a right turn, drives 4 km, turns right and drives 10 km. He then takes a right turn and drives 7 km. He takes a final right turn, drives 3 km and stops at Point P. How far (shortest distance) and towards which direction should he drive in order to reach Point A again? (All turns are 90-degree turns only unless specified.)**

A. 3 km to the east
B. 4 km to the east
C. 4 km to the west
D. 3 km to the west

Answer: D

Sol: **Given:**
Ravi starts from Point A and drives 7 km towards the south.
He then takes a right turn, drives 4 km, turns right and drives 10 km.
He then takes a right turn and drives 7 km.
He takes a final right turn, drives 3 km and stops at Point P.



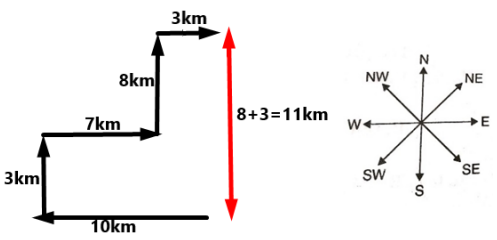
Ravi sholuld drive **3 km to the west** in order to reach Point A again.
Thus, correct option is (d).

Q.56 **Rekha starts from point A and drives 10 km towards west and then takes a right turn and drives for 3 km. She then takes a right turn and drives for 7 km. She then takes a left turn and drives for 8 km and finally takes a right turn and drives for 3 km to reach point X. How far (shortest distance) and towards which direction should she drive in order to reach point A again? (All turns are 90° turns only unless specified.)**

A. 7 km towards east
B. 11 km towards north
C. 11 km towards south
D. 8 km towards west

Answer: C

Sol: **Given**: Rekha starts from point A and drives 10 km towards west and then takes a right turn and drives for 3 km.
She then takes a right turn and drives for 7 km.
She then takes a left turn and drives for 8 km and finally takes a right turn and drives for 3 km to reach point X.



Rekha should drive **11 km towards south** in order to reach point A again.
Thus, correct option is (c).

Q.57 **Two brothers Giri and Suri working in different offices started from their home in the morning. Giri drove for 3 km following the shadow, then drove for 5 km turning to his left to reach his office. Suri drove for 8 km while his shadow was to his right, then turned to his right and drove 7 km. How far and in which direction is Suri with respect to Giri now?**

A. 7 km, South
B. 5 km, South-West
C. 5 km, North
D. 7 km, South-East

Answer: B

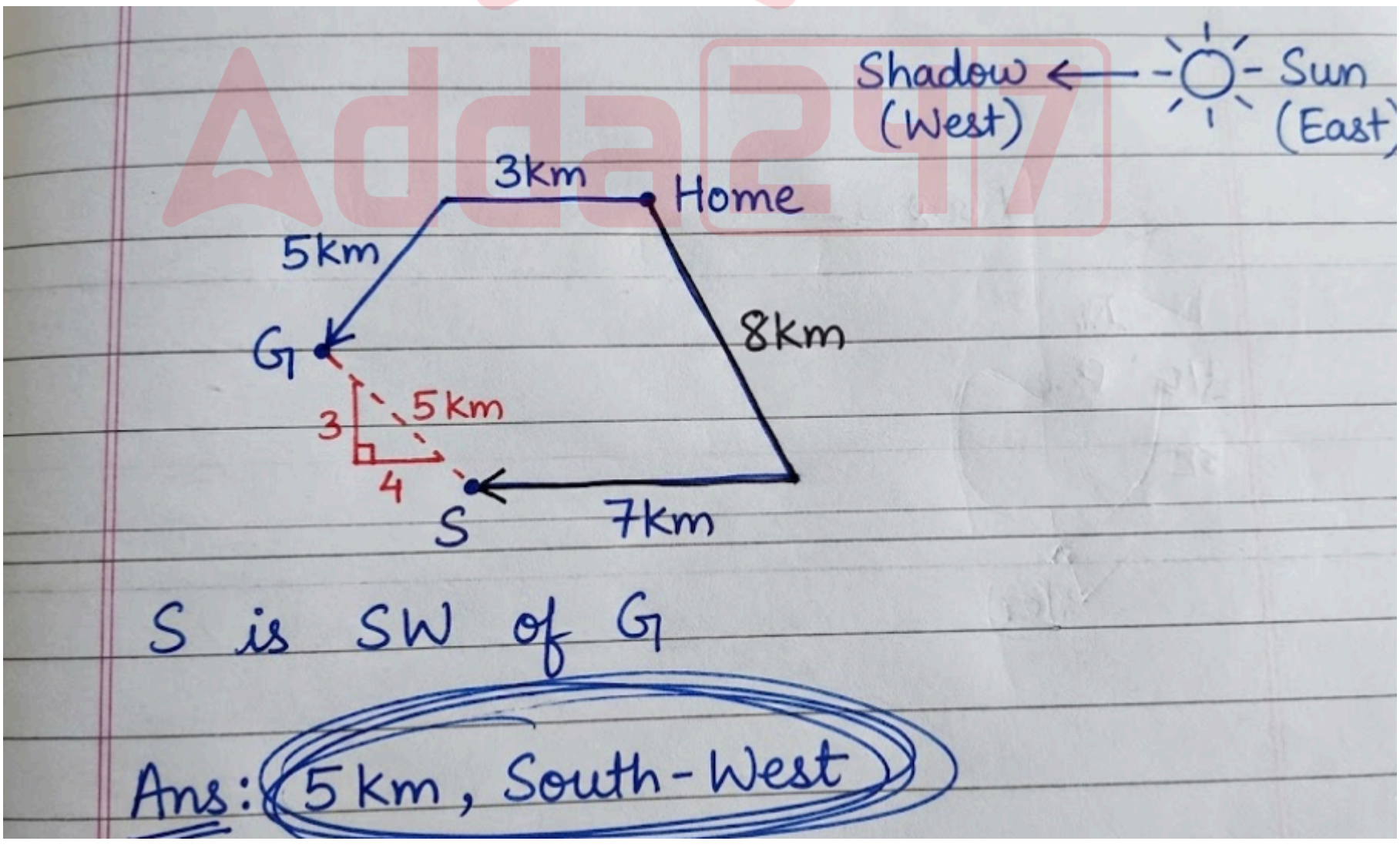
Sol: **Given** - Two brothers Giri and Suri working in different offices started from their home in the morning. Giri drove for 3 km following the shadow, then drove for 5 km turning to his left to reach his office. Suri drove for 8 km while his shadow was to his right, then turned to his right and drove 7 km. How far and in which direction is Suri with respect to Giri now?
First, decode the directions using the "Morning Rule":
Morning Sun: East Shadow: West.

Decode the Paths:

Giri:
"Follows Shadow" = Goes West (3 km).
Left of West is South. Goes South (5 km).
Giri's Location: 3W, 5S.

Suri:
"Shadow to his Right". In the morning, shadow is West. If West is to your right, you must be facing South.
Goes South (8 km).
Turns Right (from South) Goes West (7 km).
Suri's Location: 7W, 8S.
The Comparison (Giri vs Suri):
West Difference: Suri (7W) - Giri (3W) = 4 km West.
South Difference: Suri (8S) - Giri (5S) = 3 km South.

Distance: It forms a right-angled triangle with sides 3 and 4. Using Pythagoras 3^2 + 4^2 = 5^2), the distance is 5 km.
Direction: Suri is more South and more West than Giri. South-West.

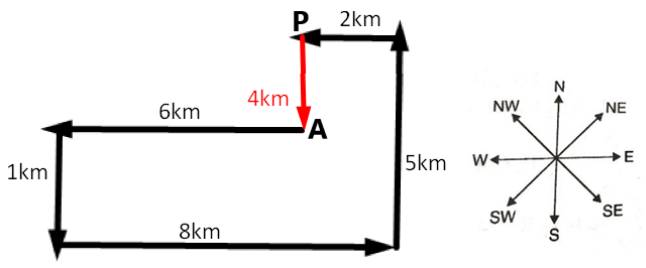


Q.58 Vishal starts from Point A and drives 6 km towards west. He then takes a left turn, drives 1 km, turns left and drives 8 km. He then takes a left turn and drives 5 km. He takes a final left turn, drives 2 km and stops at Point P. How far (shortest distance) and towards which direction should he drive in order to reach Point A again?
(All turns are 90° turns only unless specified.)

A. 2 km south
B. 3 km south
C. 5 km south
D. 4 km south

Answer: D

Sol: **Given:**
Vishal starts from Point A and drives 6 km towards west.
He then takes a left turn, drives 1 km, turns left and drives 8 km.
He then takes a left turn and drives 5 km.
He takes a final left turn, drives 2 km and stops at Point P.



Vishal should drive **4 km south** in order to reach Point A again.
Thus, the correct option is (d).

Q.59 If
'M Ω R' means 'M is the sister of the husband of R',
'M © R' means 'M is the son of R',
'M ¥ R' means 'M is the brother of R',
'M = R' means 'M is the daughter-in-law of R',
how is A related to E in the following expression?
A ¥ B Ω C = D © E

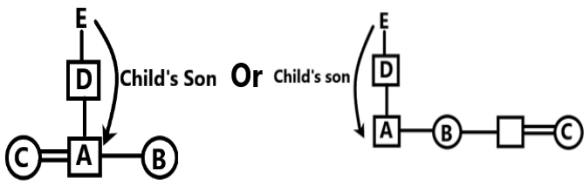
A. Child's son
B. Daughter
C. Son
D. Son-in-law

Answer: A

Sol: **Given:**
'M Ω R' means 'M is the sister of the husband of R',
'M © R' means 'M is the son of R',
'M ¥ R' means 'M is the brother of R',
'M = R' means 'M is the daughter-in-law of R',
Expression: A ¥ B Ω C = D © E

Symbol in Diagram	Meaning
-/O	Female
+/□	Male
=	Married Couple
—	Siblings
|	Difference Of Generation

According to the given information, Family tree diagram of the given expression will be:



Or

A is Child's son of E.
Thus, the correct option is **(a) Child's son.**

Q.60 If
'$ P #' means '$ is the brother of #'
'$ Q #' means '$ is the daughter of #'
'$ R #' means '$ is the wife of #'
'$ S #' means '$ is the son of #'
Then which of the following represents 'A is the grand-daughter of D'?

A. ESARBQCPD
B. ASBPCQDSE
C. EPAQBRCSD
D. AQBSCPDRE

Answer: C

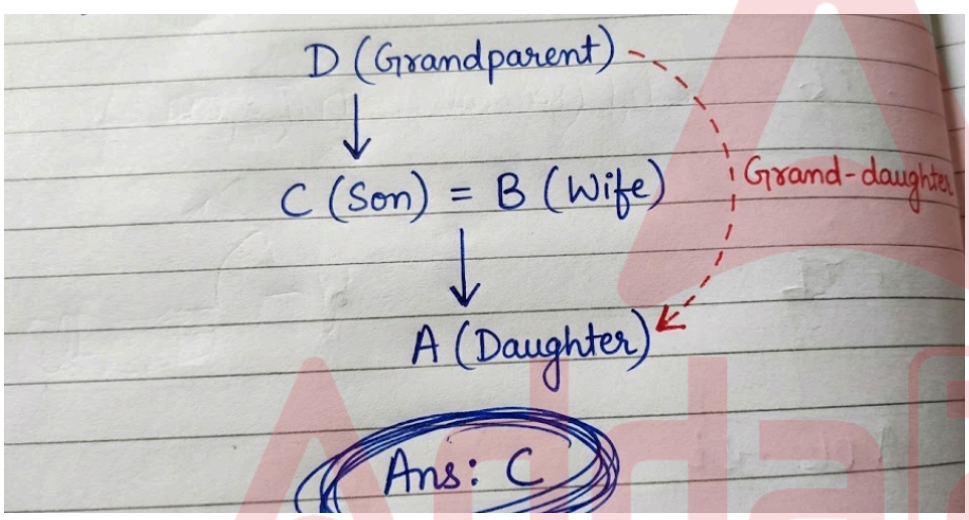
Sol: **Question**:
Which expression represents **"A is the grand-daughter of D"**

Logic:
Grand-daughter = daughter of D's son or daughter.

Explanation:
Logic: A must be **female (Q)** and child of someone who is **child of D**.
Step-by-step (one valid representation):
• B S D → B is the son of D
• A Q B → A is the daughter of B

Thus, A is the grand-daughter of D.

Final Answer:
EPAQBRCSD



Q.61 @ is S's brother. α is S's sister. β is #'s father. # is α's brother. Ω is α's mother. β's son is S. Then how many sons does β have?

A. 2
B. 3
C. 1
D. 4

Answer: B

Sol: **Information Given:**
@ is S's brother
α is S's sister
β is #'s father
Ω is α's mother
β's son is S

Logic:
Identify all male children (sons) of β.

Explanation:
Logic: Anyone who is male and child of β is a son.
Step-by-step:
• β is father of # → # is son of β

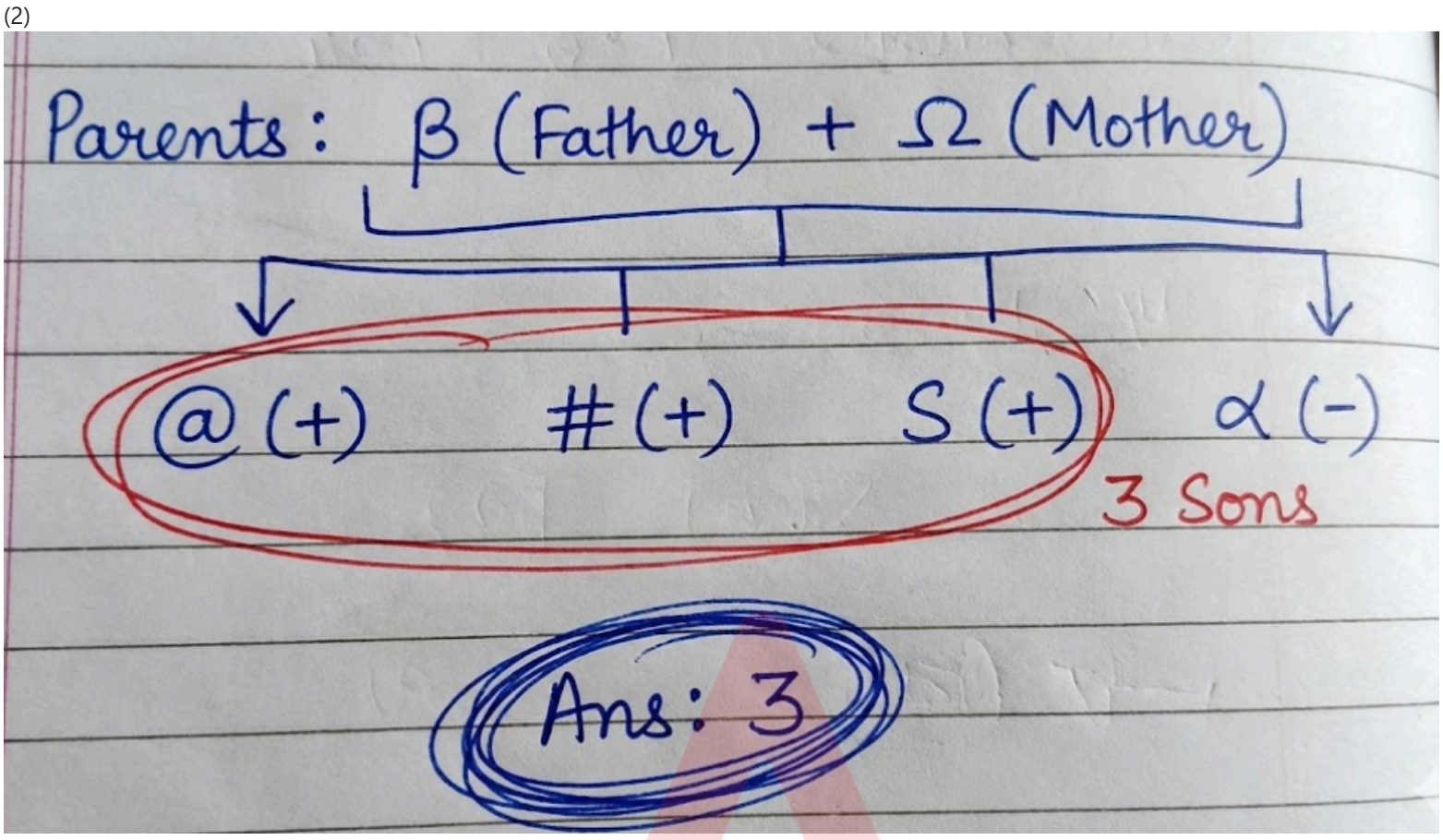
• β's son is S → S is son of β
• @ is S's brother → @ is also son of β
• α is sister → female, not counted

Sons of β = S, @, #

Short Trick:
Count all males connected as brothers of β's son.

Final Answer:
3

Final Correct Option:
(2)

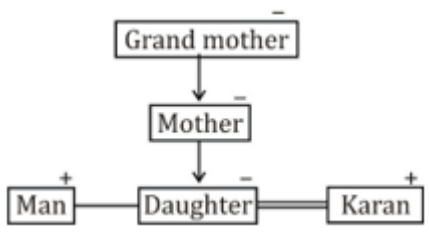


Q.62 **Introducing Karan, a man says, "He is the husband of the granddaughter of my maternal grandmother". How is Karan related to that man?**

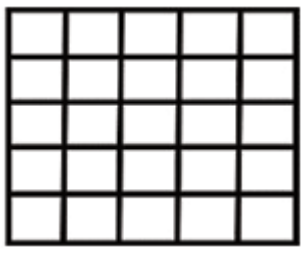
A. Grandfather
B. Brother-in-law
C. Maternal grandfather
D. Father

Answer: B

Sol:



Q.63 **How many squares are there in the given figure?**



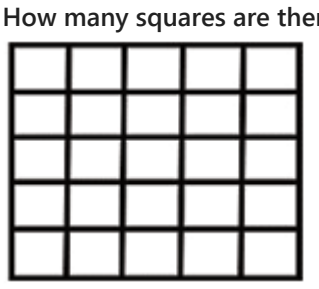
A. 23
B. 45
C. 36
D. 55

Answer: D

Sol:

Total no of squares = 12+22+32+42+52
= 1 + 4 + 9 + 16 + 25
= 55

Q.64 How many squares are there in the given figure?



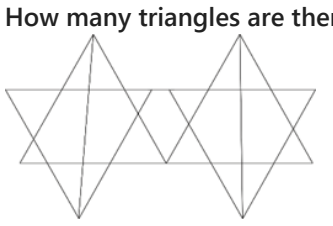
A. 23
B. 45
C. 36
D. 55

Answer: D

Sol:

Total no of squares = 12+22+32+42+52
= 1 + 4 + 9 + 16 + 25
= 55

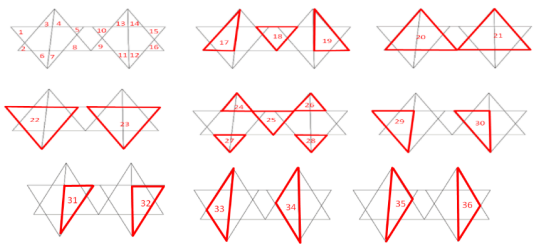
Q.65 How many triangles are there in the following figure?



A. 30
B. 36
C. 21
D. 29

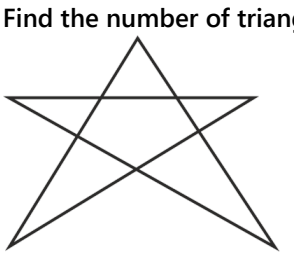
Answer: B

Sol: There are 36 Triangle shown bellow:



Thus, the correct option is: (b)

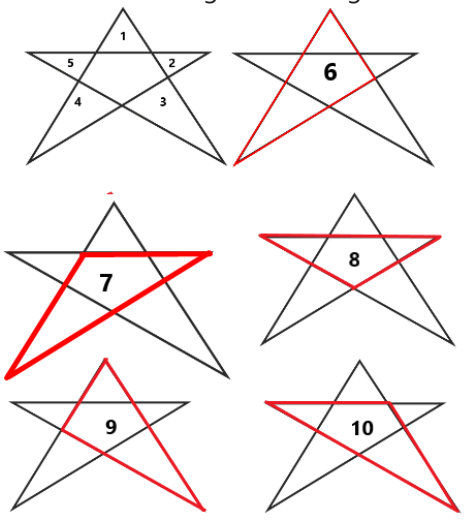
Q.66 Find the number of triangles in the following figure.



A. 11
B. 6
C. 10
D. 9

Answer: C

Sol: There are 10 triangles in this figure.



Q.67 **Select the triad that follows the same pattern as that followed by the two triads given below. Both triads follow the same pattern.**
MT-OV-QS
OV-QX-SU

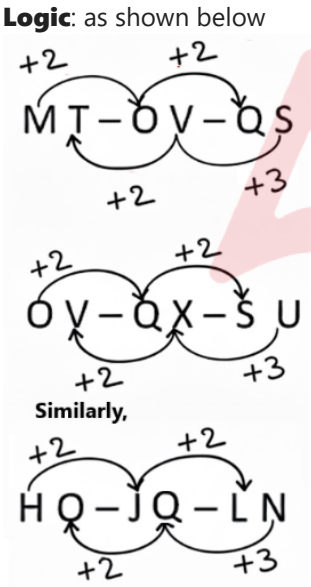
A. HO-JQ-LM
B. GO-JQ-LM
C. HO-JQ-LN
D. GO-IQ-LM

Answer: C

Sol: **Given:**
MT-OV-QS
OV-QX-SU

1	2	3	4	5	6	7	8	9	10	11	12	13
A	B	C	D	E	F	G	H	I	J	K	L	M
Z	Y	X	W	V	U	T	S	R	Q	P	O	N
26	25	24	23	22	21	20	19	18	17	16	15	14

Logic: as shown below



Thus, correct option is (c).

Q.68 **RX 2 is related to TT –7 in a certain way. In the same way, MQ 9 is related to OM 0. To which of the following is NV 15 related, following the same logic?**

A. PQ 8
B. QQ 6
C. PR 6
D. QR 8

Answer: C

Sol: **Given:**

RX 2 → TT –7
MQ 9 → OM 0
Find: NV 15 → ?

1	2	3	4	5	6	7	8	9	10	11	12	13
A	B	C	D	E	F	G	H	I	J	K	L	M
Z	Y	X	W	V	U	T	S	R	Q	P	O	N
26	25	24	23	22	21	20	19	18	17	16	15	14

Logic: 1st + 2, 2nd - 4, Number -9
RX 2 → TT –7
R +2 → T
X –4 → T
2 –9 → –7
MQ 9 → OM 0
M +2 → O
Q –4 → M
9 –9 → 0
Similarly, NV 15 → ?
N +2 → **P**
V –4 → **R**
15 – 9 = **6**
NV 15 → PR 6
Thus, correct option is (c).

Q.69 **Select the option that is related to the fourth number in the same way as the first number is related to the second number and the fifth number is related to the sixth number.**
157 : 13 :: ? : 9 :: 241 : 16

A. 70
B. 81
C. 77
D. 73

Answer: D

Sol: **Given:** 157 : 13 :: ? : 9 :: 241 : 16
Logic: (Second Number)^2-(second number-1)=first number
157 : 13
13^2-(13-1)=169-12=157
and
241 : 16
16^2-(16-1)=256-15=241
Therefore,
? : 9
9^2-(9-1)=81-8=73
So, ?=**73**
Thus, option D is correct.

Q.70 **Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.**
NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding /deleting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)
21 : 9261 :: 17 : 4913 :: 8 : ?

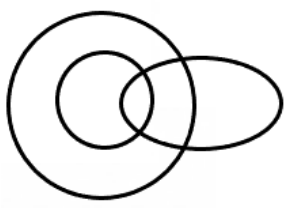
A. 1024
B. 488
C. 512
D. 2356

Answer: C

Sol: **Given**:
21 : 9261 :: 17 : 4913 :: 8 : ?
Logic:
Each second number is the cube of the first number.
21^3=9261

17^3=4913
8^3=512
Final Answer: 512
Final Correct Option: (C)

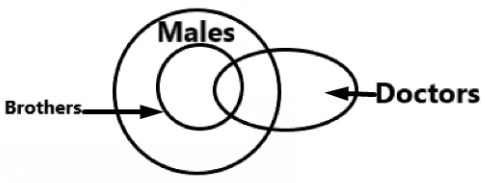
Q.71 The Venn diagram given below best represents the relationship among which of the classes given in the options?



A. Nucleus, Protons, Neutrons
B. Circles, Squares, Triangles
C. Mammals, Reptiles, Lizards
D. Brothers, Doctors, Males

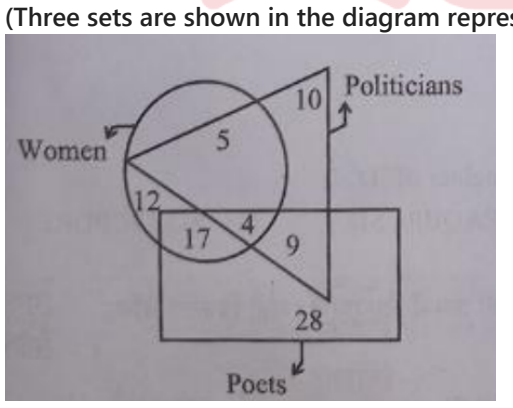
Answer: D

Sol: All brothers are males, because a brother is by definition a male sibling.
Doctors can be male or female, so only some doctors are males.



Thus, correct option is (d).

Q.72 Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of persons. (Three sets are shown in the diagram representing Women, Politicians, and Poets.)



How many women poets are politicians?

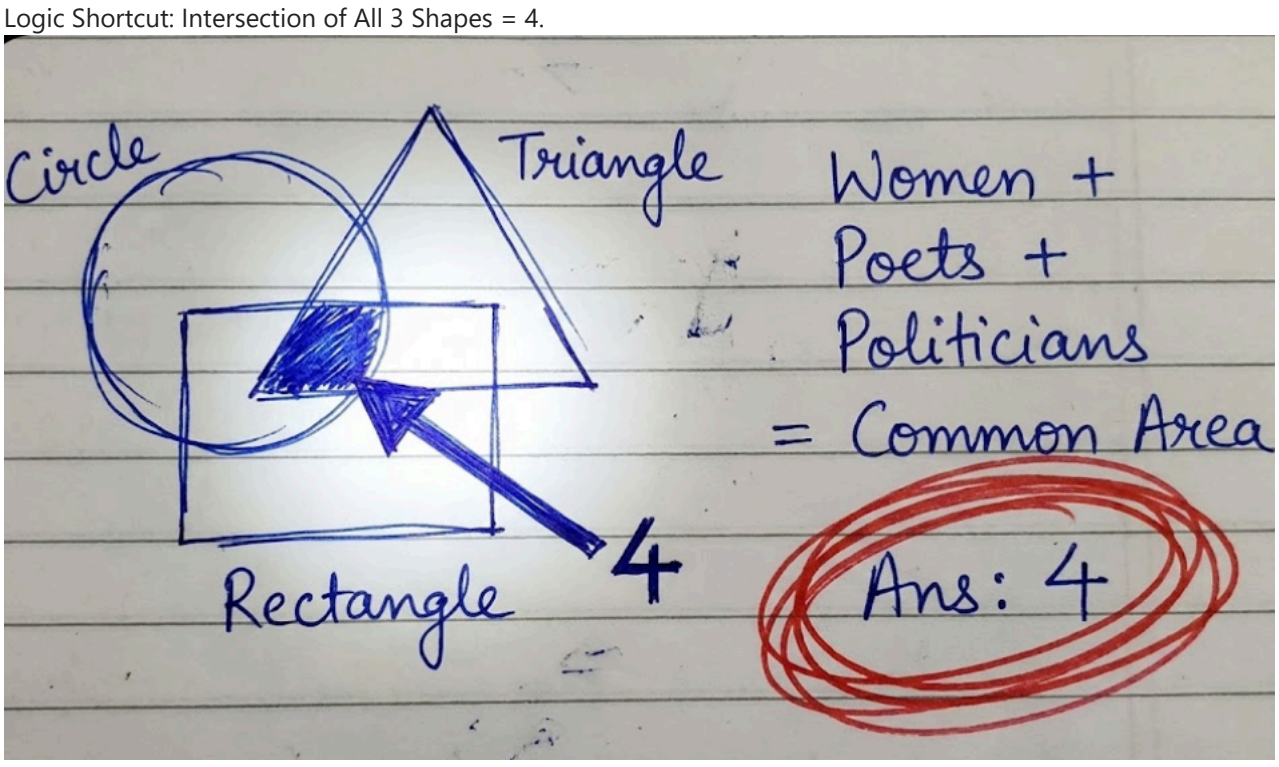
A. 5
B. 4
C. 9
D. 17

Answer: B

Sol: The Map:
Circle = Women
Rectangle = Poets
Triangle = Politicians

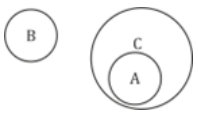
The Logic: You need to find the single number that is trapped inside the Circle, the Rectangle, AND the Triangle all at the same time.

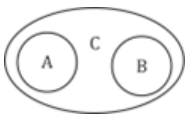
Visual Check: Look at the diagram.
The number 5 is only in the Circle and Triangle (Women + Politicians).
The number 9 is only in the Triangle and Rectangle (Politicians + Poets).
The number 4 is the only one sitting in the exact center where all three shapes overlap.
Logic Shortcut: Intersection of All 3 Shapes = 4.

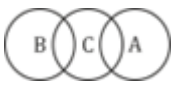


Q.73 **Which of the following correctly represents the relationship between?**
A. Metal
B. Glass
C. Vessels

A. 

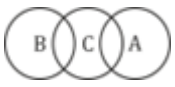
B. 

C. 

D. 

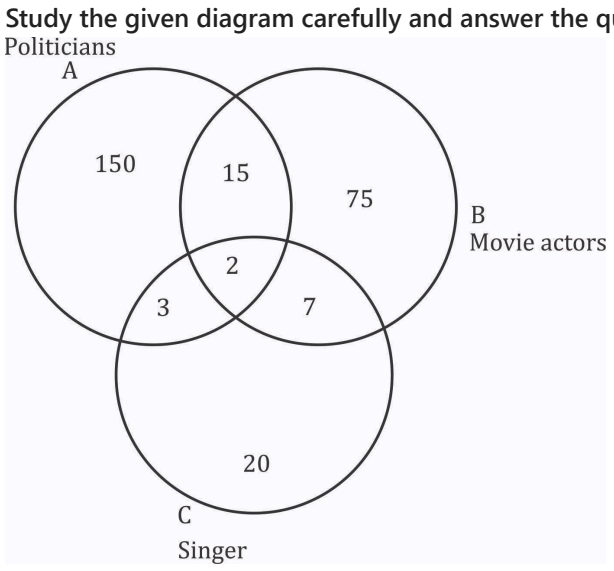
Answer: D

Sol: **Given:** A. Metal B. Glass C. Vessels



Glass and **Metal** are not the only material used to make a **Vessel**.
Thus, correct option is (d).

Q.74 **Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of persons.**

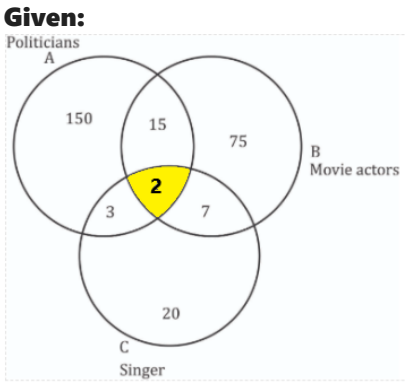


How many politicians are there who are Movie actors and singers also?

A. 2
B. 12
C. 3
D. 7

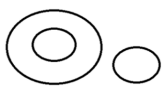
Answer: A

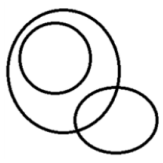
Sol: **Given:**

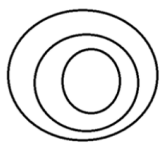


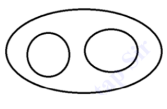
As per the Venn diagram, there are 2 politicians who are Movie actors and singers also.
Thus, the correct option is **(A) 2.**

Q.75 **Which of the following Venn diagrams indicates the best relation between Food, Bread and Wool?**

A. 

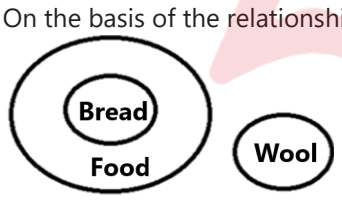
B. 

C. 

D. 

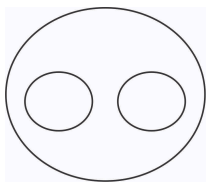
Answer: A

Sol: **Given:** Food, Bread and Wool
On the basis of the relationship of the given words, the correct Venn diagram will be:



Bread is a type of Food (so Bread is a subset of Food).
Wool is not related to Food or Bread in the same way, as it is used for clothing.
Thus, the correct option is **(a).**

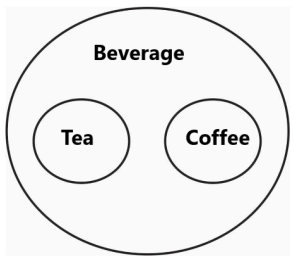
Q.76 **Select the set of classes the relationship among which is best illustrated by the Venn diagram given below.**



A. Beverage, Tea, Coffee
B. Elephant, Deer, Tiger
C. Doctor, MBA, Engineer
D. Clock, Fan, Refrigerator

Answer: A

Sol: **Tea** and **coffee** are part of **Beverage**.



Thus, correct option is (a).

Q.77 The ratio of the present ages of Piyush and Bharat is 11 : 13. 15 years ago, the ratio of ages of Piyush and Bharat was 17 : 21. What is the present age (in years) of Piyush?

A. 66
B. 63
C. 51
D. 78

Answer: A

Sol: Let the ages of Piyush and Bharat are 11k and 13k respectively.

ATQ,

$\frac{11k-15}{13k-15} = \frac{17}{21}$

$\Rightarrow 231k - 315 = 221k - 255$

$\Rightarrow k = 6$

Present age of Piyush = 11k = 66 years.

Q.78 A bag has 4 fair coins (1 head 1 tail) and 4 double-headed coins. A coin is drawn and flipped 3 times all heads. Probability it's double-headed?

A. 4/5
B. 8/9
C. 2/3
D. 3/4

Answer: B

Sol: **Given**:

A bag has 4 fair coins (1 head 1 tail) and 4 double-headed coins.

A coin is drawn and flipped 3 times all heads.

Solution:

P(D) = $\frac{4}{8} = \frac{1}{2}$, P(F) = $\frac{1}{2}$

P(H_3|D) = 1, P(H_3|F) = $\left(\frac{1}{2}\right)^3 = \frac{1}{8}$

P(H_3) = P(H_3|D)P(D) + P(H_3|F)P(F)

$= 1 \cdot \frac{1}{2} + \frac{1}{8} \cdot \frac{1}{2}$

$= \frac{9}{16}$

P(D|H_3) = $\frac{P(H_3|D)P(D)}{P(H_3)}$

$= \frac{1 \cdot \frac{1}{2}}{\frac{9}{16}}$

$= \frac{8}{9}$

So, $\frac{8}{9}$ it's double-headed.

Thus, correct option is (b).

Q.79 A cube of 18 cm side each is cut into cube of 6 cm each. How many such small cubes will be made?

A. 27
B. 64
C. 16
D. 8

Answer: A

Sol: Given:

Big cube side = 18 cm

Small cube side = 6 cm

Find how many small cubes fit along one edge:

$\frac{18}{6}$ = 3

So, 3 cubes along each edge.

Total number of small cubes:

3 × 3 × 3 = **27**

Thus, the correct option is: (a)

Q.80 **The age of Savita is thrice of the age of Mohan. The sum of age of Mohan and Savita is twice the age of Sohan. The sum of ages of three persons is 150. What is the age of Sohan?**

A. 50

B. 45

C. 75

D. 25

Answer: A

Sol: Let:

Mohan's age = **M**

Savita's age = **3M** (since Savita is thrice Mohan)

Sohan's age = **S**

From the question:

M + 3M = 2S → (Sum of Mohan and Savita is twice Sohan)

=> 4M = 2S

=> S = 2M

Total sum of all ages = 150:

=> M + 3M + S = 150

=> 4M + S = **150**

Now substitute **S = 2M** into this equation:

4M + 2M = 150

6M = 150

=> M = 25

Sohan's age (S) : 2M

S = 2M = 2 × 25 **= 50**

So, the age of Sohan is: **50**

Thus, the correct option is: (a)

Q.81 **In a party Shweta cuts a cake into four equal halves. Then one piece is cut into two equal parts, each weighing 25 grams. What is the weight (in gm) of the whole cake?**

A. 225

B. 150

C. 200

D. 250

Answer: C

Sol: **Given:**

She cuts the cake into **4 equal parts (i.e., quarters)**.

So, the **cake is divided into 4 equal pieces**.

Then:

One of those 4 pieces is cut into **2 equal parts**, and **each part weighs 25 grams**.

Step-by-step:

If half of one quarter **= 25 gm**,

→ then one quarter **= 25 × 2 = 50 gm**

The cake has **4 such quarters**,

→ so total weight = **4 × 50 = 200 grams**

So, the weight of the whole cake is **200gm.**

Thus, the correct option is: (c)

Q.82 **On Ajay's birthday, chocolates were to be distributed equally among 100 children. He could distribute to 70 children only so that each child got 3 chocolates extra. How many total chocolates were available for distribution?**

A. 700
B. 210
C. 900
D. 300

Answer: A

Sol: **Given**:
On Ajay's birthday, chocolates were to be distributed equally among 100 children.
He could distribute to 70 children only so that each child got 3 chocolates extra.
Solution:
Each child was supposed to get x chocolates.
So, total chocolates planned = 100 × x
But actually, only 70 children got chocolates, and each got x + 3 chocolates.
So, total chocolates given = 70 × (x + 3)
Since the total chocolates are the same in both cases:
100 × x = 70 × (x + 3)
100x = 70x + 210
100x - 70x = 210
30x = 210
x = 7
So, each child was originally supposed to get 7 chocolates.
Total chocolates = 100 × 7 = **700**
700 total chocolates were available for distribution.
Thus, correct option is (a).

Q.83 **Seven boxes, A, B, C, D, E, F and G, are kept one over the other but not necessarily in the same order. Only A is kept above F. Only D is kept between F and C. Only E is kept below B. How many boxes are kept below C?**

A. 1
B. 3
C. 4
D. 2

Answer: B

Sol: **Given**: Seven boxes, A, B, C, D, E, F and G, are kept one over the other but not necessarily in the same order.
Only A is kept above F.
Only D is kept between F and C.
Only E is kept below B.

Position	**Box**
1	A
2	F
3	D
4	C
5	G

6	B
7	E

Three boxes are kept below C.
Thus, the correct option is (b).

Q.84 **Five boxes R, S, T, U and V are kept one over the other but not necessarily in the same order. R is kept third from the bottom. Only two boxes are kept between V and U. S is kept immediately below U. V is kept at the top-most position. Which box is kept second from the top?**

A. S
B. V
C. U
D. T

Answer: D

Sol: **Given:**
Five boxes R, S, T, U and V are kept one over the other but not necessarily in the same order.
R is kept third from the bottom.
Only two boxes are kept between V and U.
S is kept immediately below U.
V is kept at the top-most position.

PositionBox

5	V
4	T
3	R
2	U
1	S

T box is kept second from the top.
Thus, correct option is **(d) T**.

Q.85 **Five trains A, B, C, D and E start from a station, in a week, from Monday to Friday. Every day, only one train will start. D should not be either the first or the last to be started in the week. E should be started immediately on the day following C's starting day. B should be started immediately a day after D and immediately a day before C. One train is to be started between A and B. Which train will start on Monday?**

A. D
B. B
C. A
D. E

Answer: C

Sol: **Given**: Five trains A, B, C, D and E start from a station, in a week, from Monday to Friday.
Every day, only one train will start.
D should not be either the first or the last to be started in the week.
E should be started immediately on the day following C's starting day.
B should be started immediately a day after D and immediately a day before C.
One train is to be started between A and B.

Day	Train
Monday	A
Tuesday	D
Wednesday	B
Thursday	C
Friday	E

Train A will start on **Monday**.
Thus, correct option is (c).

Q.86 **Among five students, Tushar, Dinesh and Himanshu are from Hyderabad. Tushar, Bavya and Jitendra are Graduates. Bavya, Himanshu and Jitendra are in Government jobs. Tushar, Dinesh and Jitendra are married. Then which of the following combinations is correct?**

A. Jitendra – Hyderabad – Graduate
B. Himanshu – Hyderabad – Married
C. Bavya – Graduate – Government Job
D. Dinesh – Graduate – Married

Answer: C

Sol: **Information Given:**
Among five students, Tushar, Dinesh and Himanshu are from Hyderabad.
Tushar, Bavya and Jitendra are Graduates.
Bavya, Himanshu and Jitendra are in Government jobs.
Tushar, Dinesh and Jitendra are married.

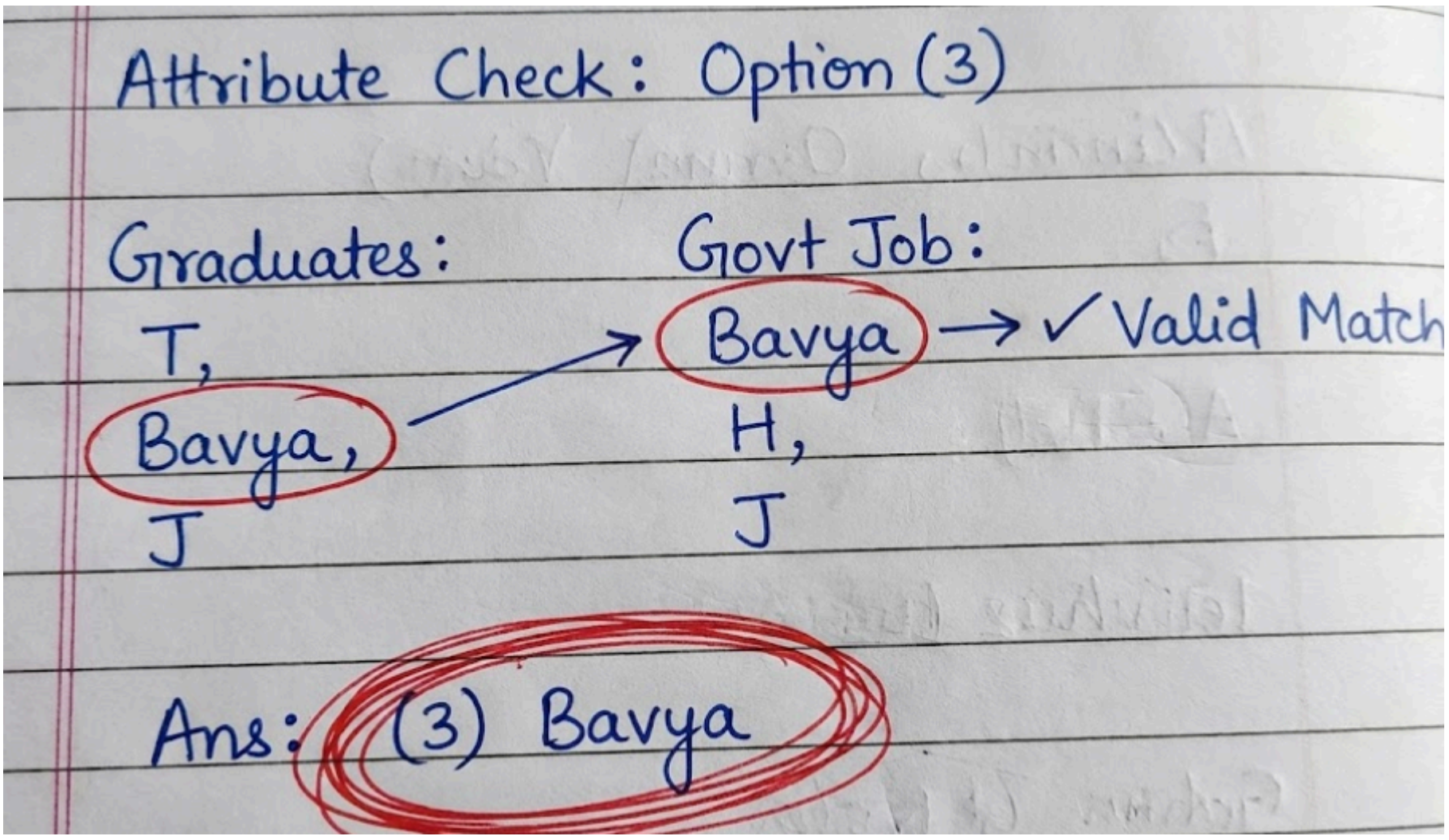
Logic:
Check each option against the given facts.

Explanation:
Logic: Verify all three attributes in each option.
Step-by-step:
• (1) Jitendra: Graduate ✔, but Hyderabad ✗ (not given)
• (2) Himanshu: Hyderabad ✔, Married ✗
• (3) Bavya: Graduate ✔, Government Job ✔
• (4) Dinesh: Married ✔, Graduate ✗

Only option (3) satisfies all conditions.

Final Answer:
Bavya – Graduate – Government Job

Final Correct Option:
(3)



Q.87 How many numbers between 1 to 50 are there, which are not only exactly divisible by 4 but also has 4 as a digit?

A. 9
B. 5
C. 4
D. 7

Answer: B

Sol: The numbers between 1 to 50 that meet both conditions:
Exactly divisible by 4
Contain the digit 4
Numbers between 1 to 50 that are divisible by 4:
4, 8, 12, 16, 20, 24, 28, 32, 36, 40, 44, 48
From the above list, the numbers that contain '4' are:
4
24
40
44
48
Total numbers = 5
Correct answer is (b)

Q.88 In the following number-pairs, the second number is obtained by applying certain mathematical operation(s) to the first number. Select the number-pair in which the numbers are related in the same way as are the numbers of the following pairs.
(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into their constituent digits. E.g. 13 – Operations on 13 such as adding to/subtracting from/multiplying with 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)
9, 108
16, 192

A. 14, 154
B. 6, 66
C. 12, 162
D. 11, 132

Answer: D

Sol: **Given:** 9 → 108, 16 → 192
Logic: Second number = first number × 12
9 × 12 = 108;

16 × 12 = 192.

Les't check options

Option A: 14, 154

14 × 12 = 168 ≠ 154

Option B: 6, 66

6 × 12 = 72 ≠ 66

Option C: 12, 162

12 × 12 = 144 ≠ 162

Option D: 11, 132

11 × 12 = 132 (**matches**)

Thus, correct option is (d).

Q.89 **Select the option that is related to the third letter-cluster in the same way as the second letter-cluster is related to the first letter-cluster.**
PG : VM :: AB : ?

A. FH
B. GH
C. FG
D. HI

Answer: B

Sol:

1	2	3	4	5	6	7	8	9	10	11	12	13
A	B	C	D	E	F	G	H	I	J	K	L	M
Z	Y	X	W	V	U	T	S	R	Q	P	O	N
26	25	24	23	22	21	20	19	18	17	16	15	14

Given - PG : VM :: AB : ?

Step 1: Find positions of letters in the alphabet

Now check the difference:

P (16) → V (22) → +6

G (7) → M (13) → +6

Logic = Both letters increased by +6

Apply the same logic to AB

A + 6 = G

B + 6 = H

So the required pair is: GH

GH is option (B)

Correct Answer: (B) GH

Q.90 **Select the option that is related to the fifth letter cluster in the same way as the second letter cluster is related to the first letter cluster and the fourth letter cluster is related to the third letter cluster.**
GLR : WBH :: FMQ : VCG :: KDA : ?

A. ATQ
B. ETU
C. IJF
D. KED

Answer: A

Sol: **Given**: GLR : WBH :: FMQ : VCG :: KDA : ?

1	2	3	4	5	6	7	8	9	10	11	12	13
A	B	C	D	E	F	G	H	I	J	K	L	M
Z	Y	X	W	V	U	T	S	R	Q	P	O	N
26	25	24	23	22	21	20	19	18	17	16	15	14

Logic: Letters are decreasing - 10 place.

For, GLR : WBH

G - 10 = W, L - 10 = B, R - 10 = H

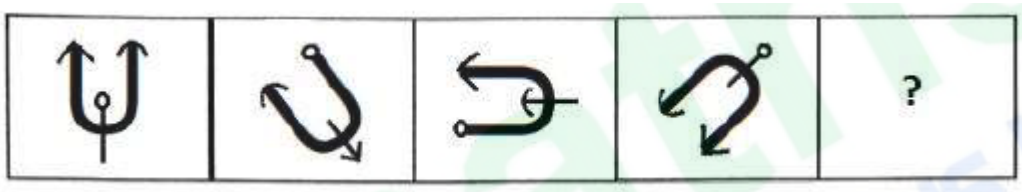
For, FMQ : VCG

F - 10 = V, M - 10 = C, Q - 10 = G

Similarly,

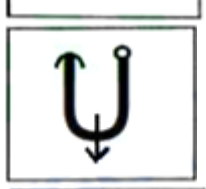
KDA : ?
K - 10 = A, D - 10 = T, A - 10 = Q
So, KDA : **ATQ**
Thus, correct option is (a).

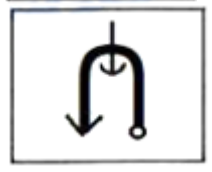
Q.91

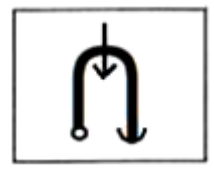


Select the figure that will come next in the following figure series.

A. 

B. 

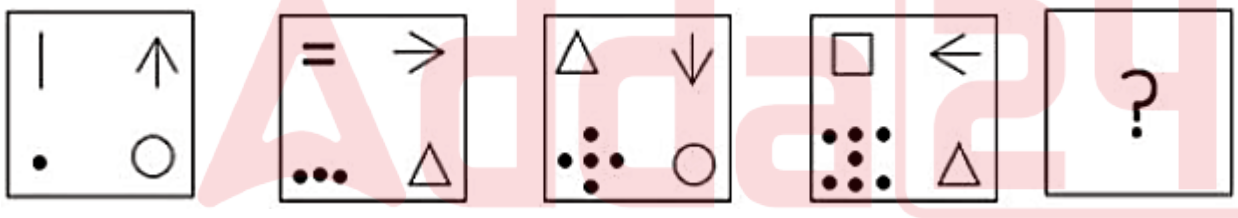
C. 

D. 

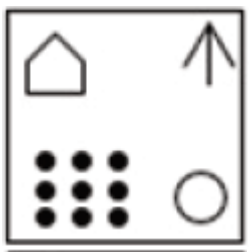
Answer: D

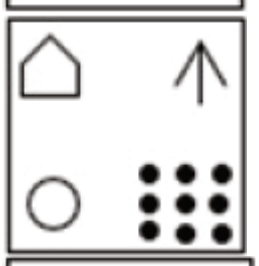
Sol:

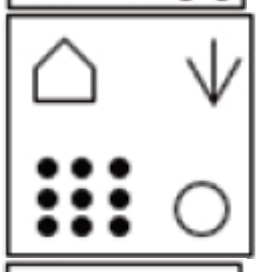
Q.92

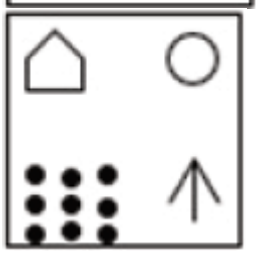


Select the figure from among the given options that can replace the question mark (?) in the following series.

A. 

B. 

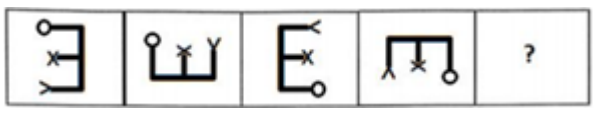
C. 

D. 

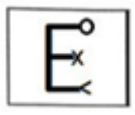
Answer: A

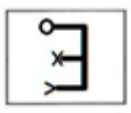
Sol:

Q.93

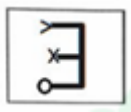


Select the figure that will come next in the following figure series.

A. 

B. 

C. 

D. 

Answer: B

Sol:

Q.94

4	B	V	V	T	O	T	O	6	6	2	V	?
	I			6			4			9		
2	T	O	4	B	2	B	2	V	T	O	B	

Which figure should replace the question mark (?) if the series were to be continued?

A.

2	V	9
	T	
O	B	6

B.

B	6	2
	V	
9	T	O

C.

V	O	B
	2	
6	9	T

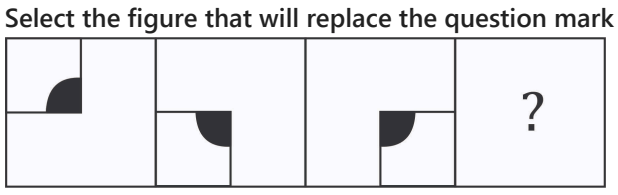
D.

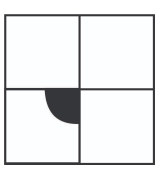
T	9	6
	O	
B	2	V

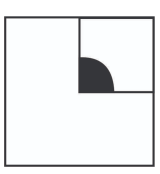
Answer: A

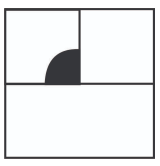
Sol:

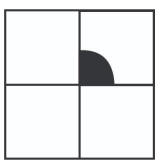
Q.95 Select the figure that will replace the question mark (?) in the following figure series.



A. 

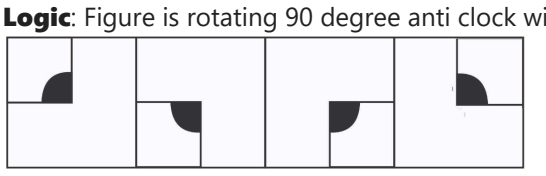
B. 

C. 

D. 

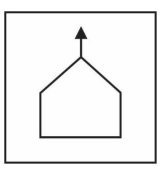
Answer: B

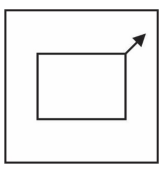
Sol: **Logic**: Figure is rotating 90 degree anti clock wise.

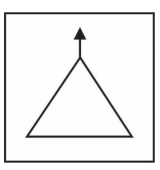


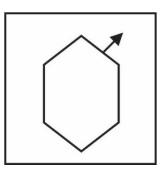
Thus, correct option is (b).

Q.96 Choose the odd one out from among the given figures?

A. 

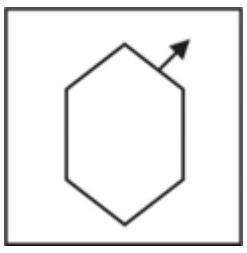
B. 

C. 

D. 

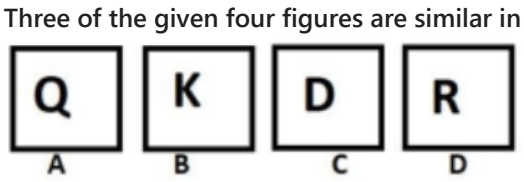
Answer: D

Sol: **Logic**: In option a, b and c arrow is from the corner of shape.



But in **option d** arrow is from the line of the shape.
So, **option d** is odd one out.
Thus, correct option is (d).

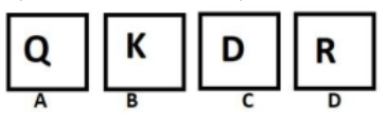
Q.97 Three of the given four figures are similar in a certain manner while one is different. Pick the odd one out.



A. C
B. B
C. D
D. A

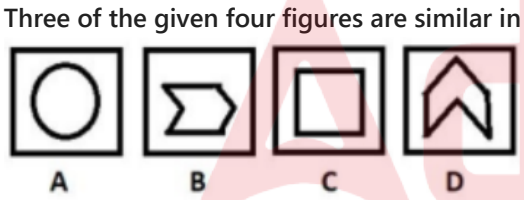
Answer: B

Sol: **Logic:**
Q has a circular shape.
D has a curved edge.
R has a curved part in its lower portion.
K, on the other hand, is formed using only straight lines and no curves, making it different from the others.



Now, the correct odd one out is **K.**
Thus, the correct option is **(b).**

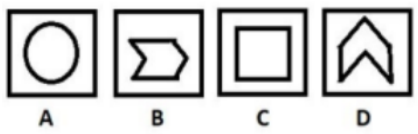
Q.98 Three of the given four figures are similar in a certain manner while one is different. Pick the odd one.



A. B
B. A
C. C
D. D

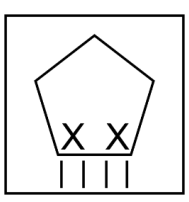
Answer: B

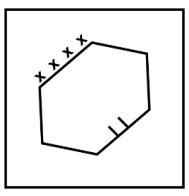
Sol: There are three options are following the same pattern except A.

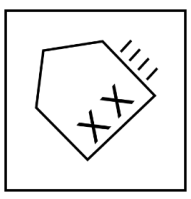


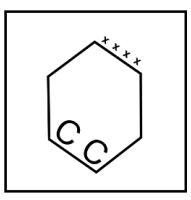
Now, the correct odd one out will be: A
Thus, the correct option is **(b).**

Q.99 Three of the following four figures are alike in a certain way and one is different. Select the odd one.

A. 

B. 

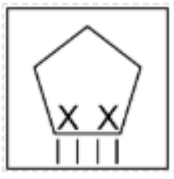
C. 

D. 

Answer: A

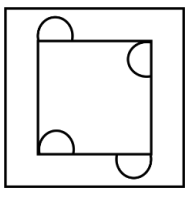
Sol: Let's check each option:

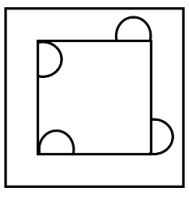
Logic: In three figures, the group of symbols inside the pentagon is placed diagonally opposite to the group of small strokes/dots outside the pentagon, but in the first figure both the inner crosses and the outer vertical lines lie on the same (bottom) side. Hence, the first figure is the odd one out.

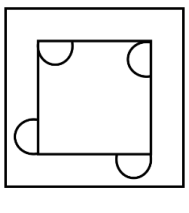


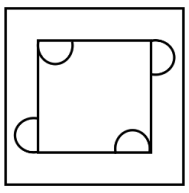
Thus, the correct option is **(A).**

Q.100 **Three of the following four figures are alike in a certain way and one is different. Select the odd one.**

A. 

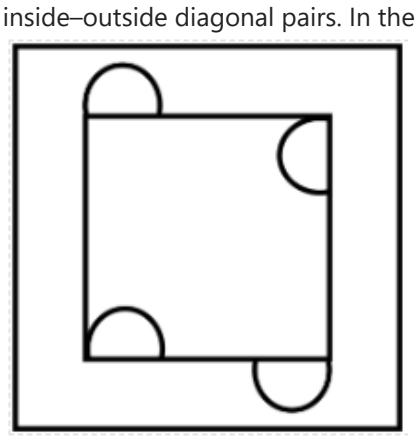
B. 

C. 

D. 

Answer: A

Sol: **Logic:** In three figures, every semicircle drawn inside the square is placed diagonally opposite to a semicircle drawn outside the square, forming inside–outside diagonal pairs. In the figure A this diagonal inside–outside pairing is not followed, so it does not fit the pattern.



Thus, the correct option is **(A).**