



Time & Work

1) Amar is 4 times more efficient than Amish. Both working together can complete the work in 12 days. Find the number of days taken by Amar to complete the work alone.

- a) 16 days
- b) 15.8 days
- c) 12.5 days
- d) 14.4 days

Correct Choice: d

Solution

Let the efficiency of Amish be x units/day

Therefore, efficiency of Amar = $4x + x = 5x$ units/day

Total work = $(5x + x) \times 12 = 72x$ units

Time taken by Amar to complete the whole work alone = $72x/5x = 14.4$ days

Hence, option d.

Ratios & Proportions

2) In a bag there are coins of Rs. 1, Rs. 2, 25 paise and 50 paise in the ratio 4:2:5:3, respectively. If the total amount in the bag is Rs. 172. Find the difference between the number of Rs. 1 coins and 50 paise coins.

- a) 16
- b) 12



c) 18

d) 14

Correct Choice: a

Solution

Let the number of coins of Rs. 1, Rs. 2, 25 paise and 50 paise be $4x$, $2x$, $5x$ and $3x$ respectively

According to the question,

$$4x + (2 \times 2x) + (5x/4) + (3x/2) = 172$$

$$\text{Or, } 16x + 16x + 5x + 6x = 172 \times 4$$

$$\text{Or, } x = (172 \times 4)/43$$

$$\text{Or, } x = 16$$

$$\text{Required difference} = (4x - 3x) = x = 16$$

Hence, option a.

Time & Distance

3) Two cyclists 'A' and 'B' are coming towards each other with a speed of 25 km/hr and 30 km/hr. If both of them meet after 48 minutes after starting and both start at the same time, then find the distance between them at the time they start.

a) 38 km

b) 36 km

c) 42 km

d) 44 km

Correct Choice: d

Solution

$$\text{Required distance} = (25 + 30) \times (48/60) = 44 \text{ km}$$



Hence, option d.

Algebra

4) If $(17/6) + (3x - 14/3) = 5x/2$, then find the value of 'x'.

- a) $11/3$
- b) $16/3$
- c) $17/6$
- d) None of these

Correct Choice: a

Solution

According to the question,

$$\{(5x/2) - 3x\} = (17/6) - (14/3)$$

$$\text{Or, } x = 11/3$$

Hence, option a.

Progressions

5) The 3rd and 7th terms of an arithmetic progression is 143 and 399 respectively. Find its 15th term.

- a) 749
- b) 865
- c) 911
- d) 857

Correct Choice: c

Solution

Let the first term and common difference of the series be 'a' and 'd' respectively



According to the question,

$$\{a + (7 - 1)d\} - \{a + (3 - 1)d\} = 399 - 143$$

$$\text{Or, } 4d = 256$$

$$\text{Or, } d = 64$$

$$\text{Therefore, } a = 143 - 128 = 15$$

$$\text{Therefore, } 15^{\text{th}} \text{ term of the series} = a + (15 - 1)d = 911$$

Hence, option c.

Coordinate Geometry

6) Point (2, -1) is midpoint of points A(x, -6) and B(-3, y). Find the value of (x + y).

- a) 11
- b) -9
- c) 15
- d) -14

Correct Choice: a

Solution

According to the question,

$$\{x + (-3)\}/2 = 2$$

$$\text{Or, } x = 4 + 3 = 7$$

$$\text{Also, } (-6 + y)/2 = -1$$

$$\text{Or, } y = -2 + 6 = 4$$

$$\text{Therefore, } (x + y) = 11$$

Hence, option a.



Areas

7) The ratio of the length to breadth of a rectangular field is 7:4, respectively. If the total cost of fencing at the rate of Rs. 2.5/m is Rs. 550, then find the area of the field.

- a) 56 dam²
- b) 28 m²
- c) 28 dam²
- d) None of these

Correct Choice: c

Solution

Let the length and breadth of the rectangular field be $7x$ metres and $4x$ metres respectively

$$\text{Therefore, } 2(7x + 4x) = 550/2.5$$

$$\text{Or, } x = 220/22 = 10 \text{ metres}$$

$$\text{Therefore, area of the field} = 7x \times 4x = 2800 \text{ m}^2 = 28 \text{ dam}^2$$

Hence, option c.



Mixtures & Allegations

8) A 18 kg alloy 'A' of tin and copper contains 12 kg tin and rest copper. Alloy 'A' is mixed with alloy 'B' of tin and copper having the ratio 3:2 respectively. If the ratio of tin to copper in final mixture is 5:3, then find the quantity of copper in alloy 'B'.

- a) 12 kg
- b) 16 kg
- c) 10 kg
- d) 15 kg

Correct Choice: a

Solution

Let the quantity of tin and copper in alloy 'B' be '3x' kg and '2x' kg respectively

According to the question,

$$(12 + 3x)/(6 + 2x) = 5/3$$

$$\text{Or, } 36 + 9x = 30 + 10x$$

$$\text{Or, } x = 6$$

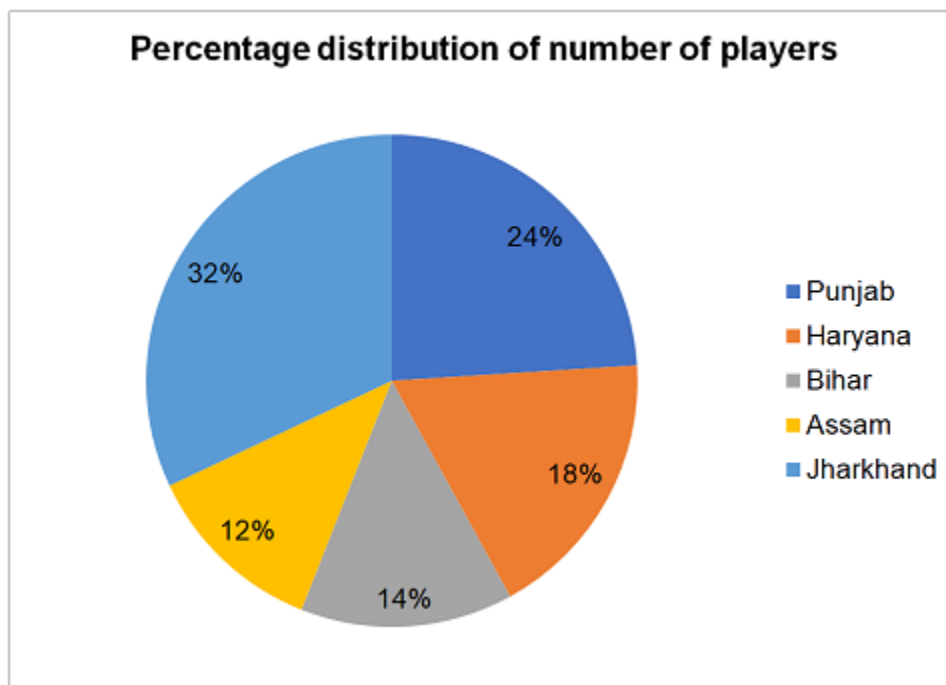
Therefore, quantity of Copper in alloy 'B' = $2x = 12$ kg



Hence, option a.

Data Interpretation (Pie Chart on Percentages)

9) The given pie-chart shows the percentage distribution of 1500 players (boys and girls) from five different states as total number of players from five states together who participated in Khelo India games.





If out of the total number of players from Haryana and Assam $\frac{2}{3}$ rd and $\frac{3}{5}$ th were boys respectively then find the difference between the number of girls who participated from given two states.

- a) 32
- b) 12
- c) 24
- d) 18

Correct Choice: d

Solution

$$\text{Required difference} = \left\{ \left(\frac{1}{3} \right) \times 0.18 - \left(\frac{2}{5} \right) \times 0.12 \right\} \times 1500 = 18$$

Hence, option d.

Profit & Loss

10) A milk seller purchased 20 litres of milk at the rate of Rs. 25 per litre. While selling the milk, he added 4 litres of water to it and sold the mixture at the same rate. Find the profit/loss percentage of the milk seller.



- a) 15%
- b) 20%
- c) 25%
- d) 18%

Correct Choice: b

Solution

Total cost price for the milk seller = $(20 \times 25) = \text{Rs. } 500$

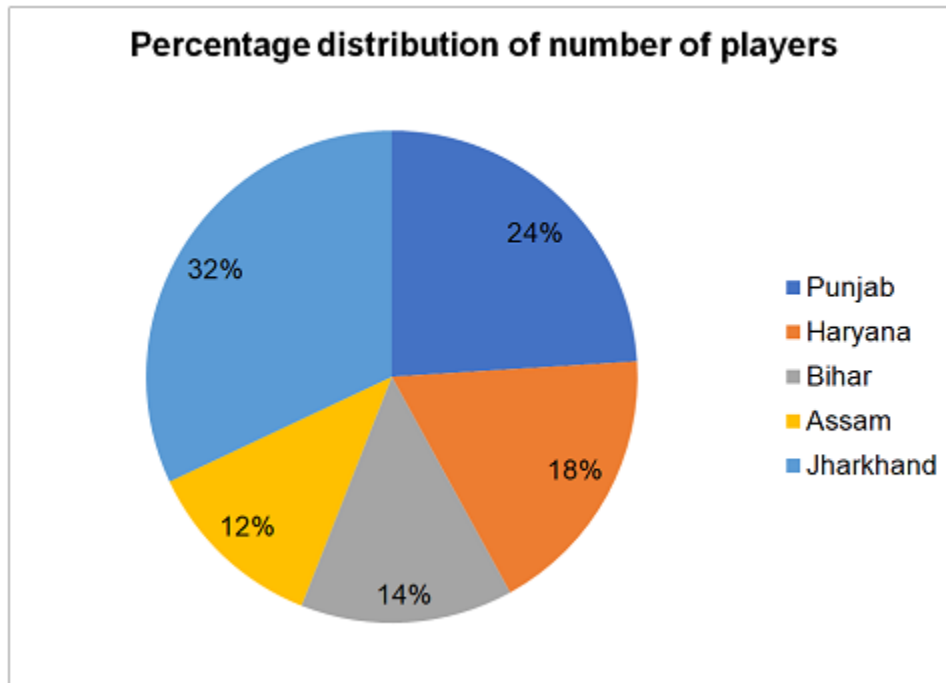
Total selling price for the milk seller = $(20 + 4) \times 25 = \text{Rs. } 600$

Required profit percent = $\{(600 - 500)/500\} \times 100 = 20\%$

Hence, option b.

Data Interpretation(Pie chart on percentages)

11) The given pie-chart shows the percentage distribution of 1500 players (boys and girls) from five different states as total number of players from five states together who participated in Khelo India games.



If 10%, 20%, 30%, 40% and 50% of the players from Punjab, Haryana, Bihar, Assam and Jharkhand won gold medals in games played by them, then find total number of games held. Only these five states participated.

- a) 465
- b) 540
- c) 395
- d) 620

Correct Choice: a

Solution

$$\text{Required number of games} = \{(0.10 \times 0.24) + (0.20 \times 0.18) + (0.30 \times 0.14) + (0.40 \times 0.12) + (0.50 \times 0.32)\} \times 1500 = 465$$

Hence, option a.



Problems on Numbers (67-68)

12) When the numerator and denominator of a fraction is increased by 7 and 13 respectively the fraction becomes $\frac{3}{5}$. Find the fraction if the denominator is 2 more than the numerator.

- a) $\frac{3}{5}$
- b) $\frac{5}{7}$
- c) $\frac{11}{13}$
- d) $\frac{7}{9}$

Correct Choice: b

Solution

Let the numerator of the fraction be 'a'

According to the question,

$$\{(a + 7)/(a + 2 + 13)\} = 3/5$$

$$\text{Or, } 5a + 35 = 3a + 45$$

$$\text{Or, } a = 10/2 = 5$$

$$\text{Required fraction} = 5/7$$

Hence, option b.

13) 60% of a number is 45% of another number. If the sum of the numbers is 350, then find the difference of the numbers.

- a) 50
- b) 75
- c) 80
- d) 45

Correct Choice: a

Solution



Let the numbers be 'x' and 'y' respectively

According to the question,

$$0.60x = 0.45y$$

$$\text{Or, } x/y = 3/4$$

Therefore, $(3 + 4)$ units = 350

Or, 1 unit = 50 units

Therefore, difference = $4 - 3 = 1$ unit = 50

Hence, option a.

Data Interpretation (Tabular Form on percentages) (69-71)

(14-16) Directions: Answer the questions based on the information given below.

The given table shows the income (in Rs.) of two persons and their percentage expenditure (in accordance to their incomes), in four different years.

	Income of 'A'	Percentage expenditure of 'A'	Income of 'B'	Percentage expenditure of 'B'
2010	45000	60%	32000	75%
2011	36000	75%	48000	50%

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2012	48000	80%	25000	80%
2013	54000	45%	40000	65%

14) Find the ratio of the expenditures of 'A' in 2010 and 2011, together to the savings of 'B' in 2011.

- a) 4:1
- b) 9:4
- c) 3:2
- d) 7:5

Correct Choice: b

Solution

In 2010:

Income of 'A' = Rs. 45000

Expenditure of 'A' = $0.6 \times 45000 = \text{Rs. } 27000$

Expenditure of 'A' = $45000 - 27000 = \text{Rs. } 18000$

Similarly,

	Income of 'A'	Expenditure of 'A'	Savings of 'A'	Income of 'B'	Expenditure of 'B'	Savings of 'B'
2010	45000	27000	18000	32000	24000	8000
2011	36000	27000	9000	48000	24000	24000



201 2	48000	38400	9600	25000	20000	5000
201 3	54000	24300	29700	40000	26000	14000

Required ratio = $(27000 + 27000):24000 = 9:4$

Hence, option b.

15) Find the difference between savings of 'A' in 2013 and expenditures of 'B' in 2011 and 2013, together.

- a) Rs. 24300
- b) Rs. 19500
- c) Rs. 18400
- d) Rs. 20300

Correct Choice: d

Solution

In 2010:

Income of 'A' = Rs. 45000

Expenditure of 'A' = $0.6 \times 45000 = \text{Rs. } 27000$

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Expenditure of 'A' = $45000 - 27000 = \text{Rs. } 18000$

Similarly,

	Incom e of 'A'	Expenditu re of 'A'	Saving s of 'A'	Incom e of 'B'	Expenditu re of 'B'	Saving s of 'B'
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2010	45000	27000	18000	32000	24000	8000
2011	36000	27000	9000	48000	24000	24000
2012	48000	38400	9600	25000	20000	5000
2013	54000	24300	29700	40000	26000	14000

Required difference = $(24000 + 26000) - 29700 = \text{Rs. } 20300$

Hence, option e.

16) The expenditure of 'A' in 2012 is how much percent of income of 'B' in 2010 and 2011, together?

- a) 60%
- b) 56%
- c) 54%
- d) 48%

Correct Choice: d

Solution

In 2010:

Income of 'A' = Rs. 45000

Expenditure of 'A' = $0.6 \times 45000 = \text{Rs. } 27000$

Expenditure of 'A' = $45000 - 27000 = \text{Rs. } 18000$

Similarly,

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	Incom e of 'A'	Expenditur e of 'A'	Saving s of 'A'	Incom e of 'B'	Expenditur e of 'B'	Saving s of 'B'
201 0	45000	27000	18000	32000	24000	8000
201 1	36000	27000	9000	48000	24000	24000
201 2	48000	38400	9600	25000	20000	5000
201 3	54000	24300	29700	40000	26000	14000

Required percentage = $\{38400/(32000 + 48000)\} \times 100 = 48\%$ Hence, option d.