Contents

*More challenging problems specially for advanced pupils.

Use Before-After Concept (1)

Ratio

Joe and May collected some phone cards in the ratio 3 : 2.

When Joe gave away 42 of his phone cards, the ratio of the number of Joe's phone cards to May's phone cards became 1 : 3.

How many phone cards did May collect?

Solution:

Since the number of May's phone cards remained unchanged, write equivalent ratios with the ratio units for the number of May's phone cards kept the same.

Before:

$$\text{Joe} : \underline{\textbf{May}} = 3_{\times 3} : 2_{\times 3} = 9 : \underline{\textbf{6}}$$

After:

$$\text{Joe} : \underline{\textbf{May}} = 1_{\times 2} : 3_{\times 2} = 2 : \underline{\textbf{6}}$$

(9 - 2) units --- 42

1 unit --- 42 ÷ 7 = 6

6 units --- 6 x 6 = 36

Ans: 36 phone cards

Practice 6

1.   The ratio of the number of girls to the number of boys in a club was 3 : 8.
     When 27 more girls joined the club, the ratio of the number of girls to the number
     of boys became 3 : 4.
     How many boys were there?

2.   Ben and Jerry shared an amount of money in the ratio 4 : 5.
     After Ben spent $78, the ratio of Ben' money to Jerry's money became 1 : 2.
     How much money did Jerry have?

*Draw A Diagram (6)
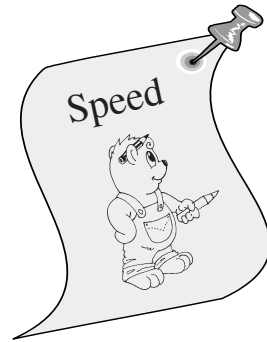
Speed

Example

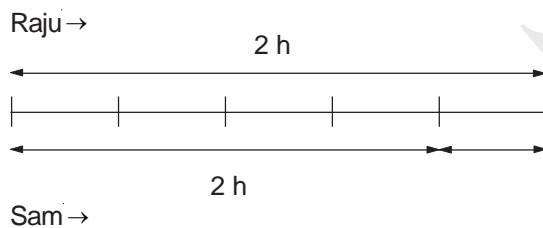Sam and Raju took part in a cycling race.

Sam's speed was 6 km/h slower than Raju.

When Raju completed the race in 2 hours, Sam had only cycled $\frac{4}{5}$ of the distance.

a)   Find the distance of the race.

b)   Find Raju's speed.

Solution:

Draw a diagram to help visualise the problem.

Raju →

2 h

2 h

Sam →

Distance = Speed x Time

$$\text{Speed} = \frac{\text{Distance}}{\text{Time}}$$

a)   Distance Raju cycled more than Sam per hour = 6 km

Distance Raju cycled more than Sam in 2 hours = 6 x 2 = 12 km

1 unit --- 12 km

5 units --- 5 x 12 = 60 km

Ans: 60 km

b)   Speed (Raju) = 60 ÷ 2 = 30 km/h

Ans: 30 km/h