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**Answer Key & Detailed Solutions** .....

**Parents' Workshop Support** .....

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\*More challenging problems specially for advanced pupils.

# 6 Unit

## Use Before-After Concept (1)



### Example

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:

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

After:

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

$$(9 - 2) \text{ units --- } 42$$

$$1 \text{ unit --- } 42 \div 7 = 6$$

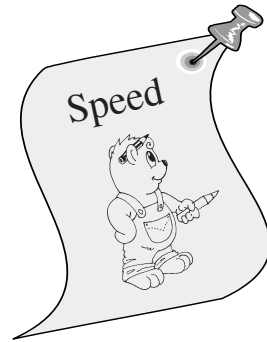
$$6 \text{ units --- } 6 \times 6 = 36$$

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)**



**Example**

Sam and Raju took part in a cycling race.

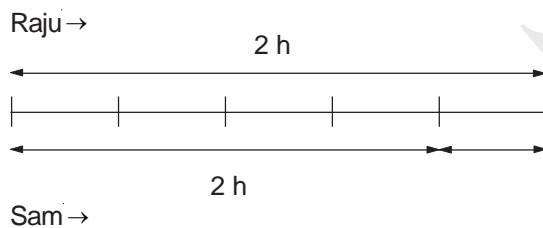
Sam's speed was 6 km/h slower than Raju.

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

- Find the distance of the race.
- Find Raju's speed.

**Solution:**

Draw a diagram to help visualise the problem.



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

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

- Distance Raju cycled more than Sam per hour = 6 km

$$\text{Distance Raju cycled more than Sam in 2 hours} = 6 \times 2 = 12 \text{ km}$$

$$1 \text{ unit} \text{ --- } 12 \text{ km}$$

$$5 \text{ units} \text{ --- } 5 \times 12 = 60 \text{ km}$$

$$\text{Ans: } 60 \text{ km}$$

- Speed (Raju) =  $60 \div 2 = 30 \text{ km/h}$

$$\text{Ans: } 30 \text{ km/h}$$