Name: _____

RATIO

Constant Part

In a pet shop, the ratio of the number of hamsters to the number of rabbits is 11 : 2. After 18 of the hamsters were sold, the ratio of the number of hamsters to the number of rabbits became 4 : 1. How many hamsters and rabbits were there in the pets shop in the end?

Unitary Method

Before			After		
Hamsters	:	Rabbits	Hamsters	:	Rabbits
11	:	2	$4^{\times 2}$	:	$1^{\times 2}$
			8	:	2

Therefore after making the units (Rabbits) the same,
Decrease in the number of hamsters → 11 units – 8 units = 3 units
3 units → 18
1 unit → 18 ÷ 3 = 6
Total hamsters and rabbits → 8 units + 2 units = 10 units

$$→ 10 \times 6 = 60$$

There were 60 hamsters and rabbits in the pets shop in the end.

PRACTISE

Question 1.

In a dance hall, the ratio of the number of men to women who are dancing is 2 : 5. If 70 men leave the dance hall, the number of men to the woman who are dancing will be 1 : 6. How many men and women are there in the dancing hall in the end?

Ans: _____

Question 2.

The ratio of the number of 20-cent coins to the number of 50-cent coins in John's wallet was 2 : 7. After John spent 54 of the 50-cent coins, the ratio of the number of 20-cent coins to the number of 50-cent coins became 5 : 4. How many coins did John have in the end?

Ans: _____

Question 3

In the morning, the ratio of the chicken eggs to the quail eggs at the market was 3 : 2. By the evening, 210 chicken eggs were sold, the ratio of the number of chicken eggs to the quail eggs became 1 : 3. How many eggs were at the market in the end?

Ans: _____

Question 4

Saul and David share a sum of money in the ratio of 7 : 5. If Saul spent $35, the ratio of Saul and David became 4 : 3. Find the sum of the money in the end.

Ans: _____

Question 5

In a plantation, the ratio of the number of apple trees to the number of mango trees was 6 : 11. A fire destroyed 78 of the apple trees and the ratio of apple trees to the number of mango trees became 1 : 4. How many trees were left in the plantation after the fire?

Ans: _____

Solutions

Question 1.

Before			After		
Men	:	Women	Men	:	Women
$2^{\times 6}$	:	$5^{\times 6}$	$1^{\times 5}$	:	$6^{\times 5}$
12	:	30	5	:	30

Therefore after making the units (Women) the same,
Decrease in the number of men → 12 units – 5 units = 7 units
7 units → 70
1 unit → 70 ÷ 7 = 10
Total men and women → 5 units + 30 units = 35 units

$$\rightarrow 35 \times 10 = 350$$

There were 350 men and women in the dance hall in the end.

Question 2.

Before			After		
20-cent	:	50-cent	20-cent	:	50-cent
$2^{\times 5}$	:	$7^{\times 5}$	$5^{\times 2}$	:	$4^{\times 2}$
10	:	35	10	:	8

Therefore after making the units (20-cent) the same,
Decrease in the number of 50-cent → 35 units – 8 units = 27 units
27 units → 54
1 unit → 54 ÷ 27 = 2
Total 20-cent and 50-cent → 10 units + 8 units = 18 units

$$\rightarrow 18 \times 2 = 36$$

John had 36 20-cent and 50-cent coins in the end.

Question 3.

Before			After		
Chicken eggs	:	Quail eggs	Chicken eggs	:	Quail eggs
$3^{\times 3}$	:	$2^{\times 3}$	$1^{\times 2}$	:	$3^{\times 2}$
9	:	6	2	:	6

Therefore after making the units (quail eggs) the same,

Decrease in the number of chicken eggs → 9 units – 2 units = 7 units

7 units → 210

1 unit → 210 ÷ 7 = 30

Total chicken and quail eggs → 2 units + 6 units = 8 units

$$\rightarrow 8 \times 30 = 240$$

There were 240 eggs at the market in the end.

Question 4.

Before			After		
Saul	:	David	Saul	:	David
$7^{\times 3}$	:	$5^{\times 3}$	$4^{\times 5}$	:	$3^{\times 5}$
21	:	15	20	:	15

Therefore after making the units (David) the same,

Decrease in Saul money → 21 units – 20 units = 1 unit

1 units → 35

Total Saul and David have → 20 units + 15 units = 35 units

$$\rightarrow 35 \times 35 = 1225$$

Both Saul and David had $1225 in the end.

Question 5.

Before			After		
Apple trees	:	Mango trees	Apple trees	:	Mango trees
$6^{\times 4}$	:	$11^{\times 4}$	$1^{\times 11}$	:	$4^{\times 11}$
24	:	44	11	:	44

Therefore after making the units (mango trees) the same,

Decrease in the number of apple trees → 24 units – 11 units = 13 units

13 units → 78

1 unit → 78 ÷ 13 = 6

Total number of apple and mango trees → 11 units + 44 units = 55 units

$$\rightarrow 55 \times 6 = 330$$

There were 330 trees left in the plantation after the fire.