Playing with Numbers Ex 2.8 Q5

Answer :

Length of the rectangular courtyard = 20 m 16 cm = 2,016 cm
Breadth of the rectangular courtyard = 15 m 60 cm = 1,560 cm
Least possible side of the square stones used to pave the rectangular courtyard = HCF of (2,016 and 1,560)
Prime factorisation of 2,016 = 2 × 2 × 2 × 2 × 2 × 3 × 3 × 7
Prime factorisation of 1,560 = 2 × 2 × 2 × 3 × 5 × 13
HCF of (2,016, 1,560) = 2 × 2 × 2 × 3 = 24

Least possible side of square stones used to pave the rectangular courtyard is 24 cm.
Number of square stones used to pave the rectangular courtyard

$$= \frac{\text{Area of rectangular courtyard}}{\text{Area of square stone}} = \frac{2016 \text{ cm} \times 1560 \text{ cm}}{(24 \text{ cm})^2} = 5460$$

Thus, the least number of square stones used to pave the rectangular courtyard is 5,460.

Playing with Numbers Ex 2.8 Q6

Answer :

Given:
Length of the first tape = 7 m = 700 cm
Length of the second tape = 3 m 85 cm = 385 cm
Length of the third tape = 12 m 95 cm = 1,295 cm

The length of the longest tape will be the HCF of 700, 385, and 1,295.
Prime factorisation of 700 = 2 × 2 × 5 × 5 × 7
Prime factorisation of 385 = 5 × 7 × 11
Prime factorisation of 1,295 = 5 × 7 × 37
∴ HCF of 700, 385, and 1,295 = 5 × 7 = 35

∴ Required length of the longest tape = 35 cm

Playing with Numbers Ex 2.8 Q7

Answer :

We have to find the largest possible number of animals. Thus, we will have to find the HCF of 105, 140, and 175.
Prime factorisation of 105 = 3 × 5 × 7
Prime factorisation of 140 = 2 × 2 × 5 × 7
Prime factorisation of 175 = 5 × 5 × 7

∴ Required HCF = 5 × 7 = 35
Hence, 35 animals went in each trip.

Playing with Numbers Ex 2.8 Q8

Answer :

Let the brand 'A' contain 24 chocolates in one packet and brand 'B' contain 15 chocolates in one packet. Equal number of chocolates of each kind can be find out by taking the LCM of the number of chocolates in each packet.

∴ LCM of 15 and 24 is:

2	15, 24
2	15, 12
2	15, 6
3	15, 3
5	5, 1
	1, 1

Required LCM = 2 × 2 × 2 × 3 × 5 = 120

Therefore, minimum 120 chocolates of each kind should be purchased.

Number of boxes of brand 'A' which needs to be purchased = 120 ÷ 24 = 5

Number of boxes of brand 'B' which needs to be purchased = 120 ÷ 15 = 8

********** END **********