



Squares and Square Roots Ex 3.4 Q6

Answer :

The prime factorisation of 1152:

$$1152 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3$$

Grouping the factors into pairs of equal factors, we get:

$$1152 = (2 \times 2) \times (2 \times 2) \times (2 \times 2) \times (3 \times 3) \times 2$$

The factor, 2, at the end, does not have a pair. Therefore, we must divide 1152 by 2 to make a perfect square. The new number is:

$$(2 \times 2) \times (2 \times 2) \times (2 \times 2) \times (3 \times 3) = 576$$

Taking one factor from each pair on the LHS, the square root of the new number is $2 \times 2 \times 2 \times 3$, which is equal to 24.

Squares and Square Roots Ex 3.4 Q7

Answer :

Let the two numbers be a and b .

From the first statement, we have:

$$a \times b = 1296$$

If one number is 16 times the other, then we have:

$$b = 16 \times a$$

Substituting this value in the first equation, we get:

$$a \times (16 \times a) = 1296$$

By simplifying both sides, we get:

$$a^2 = 1296/16 = 81$$

Hence, a is the square root of 81, which is 9.

To find b , use equation $b = 16 \times a$.

Since $a = 9$:

$$b = 16 \times 9 = 144$$

So, the two numbers satisfying the question are 9 and 144.

Squares and Square Roots Ex 3.4 Q8

Answer :

Let R be the number of residents.

Let r be the money in rupees donated by each resident.

$$\text{Total donation} = R \times r = 202500$$

Since the money received as donation is the same as the number of residents:

$$\therefore r = R$$

Substituting this in the first equation, we get:

$$R \times R = 202500$$

$$R^2 = 202500$$

$$R^2 = (2 \times 2) \times (5 \times 5) \times (5 \times 5) \times (3 \times 3)^2$$

$$R = 2 \times 5 \times 5 \times 3 \times 3 = 450$$

So, the number of residents is 450.

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