Squares and Square Roots Ex 3.4 Q6

Answer :

The prime factorisation of 1152:
1152 = 2 x 2 x 2 x 2 x 2 x 2 x 2 x 3 x 3
Grouping the factors into pairs of equal factors, we get:
1152 = (2 x 2) x (2 x 2) x (2 x 2) x (3 x 3) x 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 x 2) x (2 x 2) x (2 x 2) x (3 x 3) = 576
Taking one factor from each pair on the LHS, the square root of the new number is 2 x 2 x 2 x 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.
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.

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