Squares and Square Roots Ex 3.1 Q12

Answer :

Prime factorisation of 28812:

28812 = 2 x 2 x 3 x 7 x 7 x 7 x 7

2	28812
2	14406
3	7203
7	2401
7	343
7	49
7	7
	1

Grouping them into pairs of equal factors:

28812 = (2 x 2) x (7 x 7) x (7 x 7) x 3

The factor, 3 is not paired. Hence, the smallest number by which 28812 must be divided such that the resulting number is a perfect square is 3.

Squares and Square Roots Ex 3.1 Q13

Answer :

Prime factorisation of 1152:

1152 = 2 x 2 x 2 x 2 x 2 x 2 x 2 x 3 x 3

2	1152
2	576
2	288
2	144
2	72
2	36
2	18
3	9
3	3
	1

Grouping them into pairs of equal factors:

1152 = (2 x 2) x (2 x 2) x (2 x 2) x (3 x 3) x 2

The factor, 2 at the end is not paired. For a number to be a perfect square, each prime factor has to be paired. Hence, 1152 must be divided by 2 for it to be a perfect square.

The resulting number would be (2 x 2) x (2 x 2) x (2 x 2) x (3 x 3).

Furthermore, we have:

(2 x 2) x (2 x 2) x (2 x 2) x (2 x 2) x (3 x 3) = (2 x 2 x 2 x 3) x (2 x 2 x 2 x 3)

Hence, the number whose square is the resulting number is:

2 x 2 x 2 x 3 = 24

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