



Squares and Square Roots Ex 3.1 Q12

Answer :

Prime factorisation of 28812:

$$28812 = 2 \times 2 \times 3 \times 7 \times 7 \times 7 \times 7$$

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

Grouping them into pairs of equal factors:

$$28812 = (2 \times 2) \times (7 \times 7) \times (7 \times 7) \times 3$$

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:

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

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:

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

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 $(2 \times 2) \times (2 \times 2) \times (2 \times 2) \times (3 \times 3)$.

Furthermore, we have:

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

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

$$2 \times 2 \times 2 \times 3 = 24$$

***** END *****

