

Class 8. Mathematics Chapter 3. Squares and Square Roots

We know that area of a square = side \times side Properties of square numbers. *All square numbers end in 0, 1, 4, 5, 6 or 9. In other words, numbers ending in 2, 3, 7, 8 are not perfect squares. *Given the unit digit of a number, we can determine the units digit of its square. Square of numbers ending in 1 or 9 would end in 1. Square of numbers ending in 2 or 8 would end in 4. Square of numbers ending in 3 or 7 would end in 9. Square of numbers ending in 4 or 6 would end in 6. Square of numbers ending in 5 or 0 would end in 5 or 0. *The number of zeroes at the end of a perfect square is always even. *If a number is even then its square is even and if a number is odd then its square is also odd.

Exercise 3.1. Sum nos 1 - 14 (to be done in ur exercise books neatly with the date n page no clearly mentioned)

Square by visual method: $102 = (100+2)$ using $(a+b)^2 = 100^2 + 2 \times 100 \times 2 + 2^2$ (The sign ^ stands for power)
 $10000 + 400 + 4 = 10404$

Another interesting pattern in squares
 $25^2 = 2 \times (2+1)100 + 25 = 625$
 $115^2 = 11 \times (11+1)100 + 25 = 13225$

Pythagorean Triplets Consider the numbers 3, 4 & 5 Let $a = 3$, $b = 4$, $c = 5$ Now $a^2 = 9$, $b^2 = 16$, $c^2 = 25$ Thus $a^2 + b^2 = c^2$ It is easy to verify for any number say (m), greater than 1, $(2m, m+1, m-1)$ is a Pythagorean Triplet.

Exercise 3.2 Sum nos 1 - 8. (exercise copies)

Properties of square roots: *If the units digit of a number is 2, 3, 7 or 8 then it is not a perfect square and hence does not have a square root. *If a number has a square root, then its units digit must be 0, 1, 4, 5, 6 or 9 *If a no ends in an odd no of zeroes then it does not have a square root. *The square root of an even no is even and that of an odd no is odd.

Square root through repeated subtraction Keep subtracting with successive odd nos starting from 1. Example. $49 - 1 = 48$, $48 - 3 = 45$, $45 - 5 = 40$, $40 - 7 =$

33,33-9=24,24-11=13,13-13=0. There are 7 steps so square root of 49 is 7.

Prime Factorisation Method Example 8100 $8100 = 2 \times 2 \times 3 \times 3 \times 3 \times 3 \times 5 \times 5$ Therefore we take 1 no from each pair and multiply it to get the square root. $\sqrt{8100} = 2 \times 3 \times 3 \times 5 = 90$

Exercise 3.3
Sum nos 1-12

Children pls follow the video before doing the next exercise.
Square root by Division Method

<https://youtu.be/ivwyF2JdTQA>

https://youtu.be/Ga1_wuLz0QM

Exercise 3.4 Sum
nos 1 - 17