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(Learning Time 3 Hours 20 minutes)

## Square Root

## 8.1 Square of a positive integer

• The numbers which can be represented by a square shaped arrangement of dots are called as square numbers as below







- 1, 4, 9, 16 ... can obtain by multiplying each positive integer itself.
- The number we obtain by multiplying a number by itself, is called the square of that number.
- The square of positive integer is called a perfect square.
- Therefore 1, 4,9,16 ... are perfect squares. By studying pages no: 90 and 91 do the exercise 8.1

8.2 The digit in the unit's place of a perfect square

- Write the first 15 squares and observe the last digit. (units place of the square numbers)
- The digit in the units place of a perfect square is one of the digits 0,1,4,5,6 or 9
- None of the digits 2, 3, 7, and 8 is ever the digit in the unit's place of a perfect square. Do the exercise 8.2

## 8.3 Square root of a perfect square

- If a number is the square of a positive number, then second number is the square root of the first.
- Since,  $8 \times 8 = 64$  Therefore  $\sqrt{64} = 8$
- We can find the square root of a perfect square number by using prime factors.

Let us find the value of  $\sqrt{36}$  using prime factors.

Let us first write 36 as a product of its prime factors.

$$36 = 2 \times 2 \times 3 \times 3$$
  

$$36 = (2 \times 3) \times (2 \times 3)$$
  

$$= (2 \times 3)^{2}$$
  

$$\therefore \sqrt{36} = 2 \times 3$$
  

$$= 6$$