

class: 8th

Topic: 6.1

P.1

Subject: Maths

Squares and Square Roots

square number

A natural number is called a perfect square or a square number, if it is an square of some natural number.

e.g. $1 = 1^2$, $4 = 2^2$, $9 = 3^2$, $16 = 4^2$

and so on!

Thus: 1, 4, 9, 16 etc. are perfect squares.

Properties of perfect squares

1. A number ending in 2, 3, 7 or 8 is never a perfect square.
2. A number ending in an odd number of zeros is never a perfect square.

EXERCISE 6.1

Q.1 What will be the unit digit of the squares of the following numbers?

(i) 81 "

Solution The unit digit of 81 = 1

\therefore The unit digit of $(81)^2 = 1^2 = 1$

(ii) 272

Solution The unit digit of 272 = 2

\therefore The unit digit of $(272)^2 = 2^2 = 4$

Do other parts yourself.

Q12. The following numbers are obviously not perfect squares. Give reason.

(i) 1054

The number 1054 is not a perfect square because no no. ending with the digit 4.

Do other parts yourself.

Q13. The squares of which of the following would be odd numbers?

(i) 431

(ii) 2826

(iii) 7779

(iv) 82004

(i) 431 and (iii) 7779 are odd numbers. Therefore, the squares of these numbers are also odd numbers.
"Because the sq. of odd no. is always an odd no."

Observe the following pattern and find the missing digits.

$$11^2 = 121$$

$$101^2 = 10201$$

$$1001^2 = 1002001$$

$$10001^2 = 100020001$$

$$1000001^2 = 1000002000001$$

Q.6 Using the given pattern, find the missing numbers.

Sol

$$1^2 + 2^2 + 2^2 = 3^2$$

$$2^2 + 3^2 + 6^2 = 7^2$$

$$3^2 + 4^2 + 12^2 = 13^2$$

$$4^2 + 5^2 + 20^2 = 21^2$$

$$5^2 + 6^2 + 30^2 = 31^2$$

$$6^2 + 7^2 + 42^2 = 43^2$$

Q.7

without adding, find the sum:

- (i) $1 + 3 + 5 + 7 + 9$
- (ii) $1 + 3 + 5 + 7 + 9 + 11 + 13 + 15 + 17 + 19 + 21 + 23$

Sol

(i) we know
 $1 + 3 + 5 + 7 + 9 =$ Sum of first 5 odd numbers
 $= 5^2 = 25$

(ii) Do yourself

Q.8 Express 49 as the sum of 7 numbers.

Sol

$$49 = 1 + 3 + 5 + 7 + 9 + 11 + 13$$

(ii) Do yourself

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