Squares and Square root

SQUARES:

Perfect Squares: A natural number is called a perfect square if it is a square of a natural number.

Properties of Perfect Square:

Property 1: A number ending with 2,3,7 or 8 can never be a perfect square.

Property 2: All the perfect square end with an even number of zeroes.

Property 3: A number ending with an odd number of zeroes can never be a perfect square.

Property 4: Square of an even number is always an even number.

Property 5: Square of an odd number is always an odd number.

Property 6: The square of a natural number 'n' is equal to the sum of the first 'n' odd natural number.

Property 7: For any two consecutive natural number n and (n+1),difference of the squares of these consecutive natural numbers is equal to the sum of the numbers.

Property 8: Pythagorean triplets:

Let a,b and c be three natural numbers

then $a^2+b^2=c^2$

$2n,n^2-1,n^2+1$ is a pythagorean triplet.

METHOD OF CALCULATING SQUARE OF A NUMBER:

1.Prime factorisation.

2.Column method.

3.Diagonal method.

Square Root: The square root of a number "a" is that number which when multiplied by itself gives "a" as a product.

Properties of a square root:

Property 1: Only square roots of a natural number is a perfect square.

Property 2: The square root of an even number is even.

Property 3: The square root of an odd number is odd.

Property 4: The square root of a number ending with 2,3,7 or 8 is not possible.

Property 5: The square root of a number ending with odd number of zeroes is not possible.

Property 6: The square root of a negative number is not possible.

Method of square roots:

1.Repeated Subtraction.

2.Prime Factorisation Method.

3.Long Division Method.

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