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CLASS VIII (MATHEMATICS)

Properties of the Square Number:

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.
3. The square of an even number is even.
4. The square of an odd number is odd.
5. The square of a proper fraction is smaller than the fraction.
6. For every natural number n , we have $\{(n + 1)^2 - n^2\} = \{(n + 1) + n\}$.
7. Sum of first n odd natural numbers $= n^2$.
8. If m, n, p are natural numbers such that $(m^2 + n^2) = p^2$, then (m, n, p) is called a Pythagorean triplet.
9. For every natural number $m > 1$, $(2m, m^2 - 1, m^2 + 1)$ is a Pythagorean triplet.
10. There are $2n$ non-perfect square numbers between the squares of the number n and $(n + 1)$.

11. Pythagorean Triplets Important Points

If a, b and c are three numbers such that any one of the following three relations holds:

(i) $a^2 + b^2 = c^2$

(ii) $b^2 + c^2 = a^2$

(iii) $c^2 + a^2 = b^2$

then the numbers a, b, c are said to form a Pythagorean triplet.

For example:

3, 4, 5 is a Pythagorean triplet because $3^2 + 4^2 = 9 + 16 = 25 = 5^2$.

we can find more such triplets.

For example: (8, 15, 17); (12, 9, 15); (12, 35, 37) etc.