Class 9 Perfect Squares

How to determine if a number is a perfect square?

If a whole number $N = P1^{a1} * P2^{a2} \ldots * Pn^{an}$, and P1, P2, …, Pn are different numbers and are prime, a1, a2, …, an are even positive numbers, then N is a perfect square.

There is no perfect square between the squares of two consecutive numbers

- Any even number's square can be written as $(2n)^2$, and has factor 4
- Any odd number's square can be written as (2n+1)2, and has remainder 1 when divided by 4
- Any number has remainder 2 or 3 when divided by 4 would not be a perfect square
- Any number has remainder 2 after divided by 3 would not be a perfect square
- Any number has remainder 2 or 3 after divided by 5 would not be a perfect square, therefore if a number's unit digit is 2, or 3, or 7 or 8 then it would not be a perfect square

- **When a perfect square's unit digit is an odd number, then it's tenth digit must be an even number**
- **When a perfect square's unit digit is an even number, then it's tenth digit can be an odd number or even number except when the unit digit is 6, then it's tenth digit would have to be an odd number**
- **If a number's tenth digit and unit digit are both odd numbers, then it would not be a perfect square**