Chapter 6

Squares & Square Roots

Properties of square numbers:

The squares of the first 30 natural numbers.

Squares 1 to 30:

Number	Square
1	1
2	4
3	9
4	16
5	25

Number	Square
6	36
7	49
8	64
9	81
10	100

Number	Square
11	121
12	144
13	169
14	196
15	225

Number	Square
16	256
17	289
18	324
19	361
20	400

Number	Square
21	441
22	484
23	529
24	576
25	625

Number	Square
26	676
27	729
28	784
29	841
30	900

The squares of an odd numbers are always odd.

Example:

$1^2 = 3$

$3^2 = 9$

$5^2 = 25$

$7^2 = 49$

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$9^2 = 81$, which are odd numbers.

The squares of an even numbers are always "even".

Example:

$2^2 = 4$

$4^2 = 16$

$6^2 = 36$

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$8^2 = 64$, which are even numbers.

The difference of the squares of two consecutive numbers to the "sum of the two numbers".

Example:

$4^2 - 3^2 = 16 - 9 = 7$ and $4 + 3 = 7$

- The square of a number ending with 1 or 9 ends with 1.

Ex. $21^2 = 441$, $29^2 = 841$

- The square of a number ending with 2 or 8 ends with 4.

Ex. $12^2 = 144$; $18^2 = 324$

- The square of a number ending with 3 or 7 ends with 9.

Ex. $13^2 = 169$; $17^2 = 289$

- The square of a number ending with 4 or 6 ends with 6.

Ex. $14^2 = 196$; $26^2 = 676$

- The square of a number ending with 5 ends with 5.

Ex. $5^2 = 25$; $15^2 = 225$

- The square of a number ending with 0 ends with even number of zeroes.

Ex. $10^2 = 100$; $20^2 = 400$

- A perfect square leaves a "remainder of 0 or 1" when divided by 3.

Ex. $36 \div 3 = 12$, remainder 0.

$16 \div 3 = 5$, remainder 1.