

28/05/24

Date			
Page No.			

## ★ Finding Squares

→ No. closer to 100 ★ ~~Between 25 & 100~~ ~~after 100~~

$$\begin{aligned} (102)^2 &= (100 + 2)^2 \\ + 2 &\leftarrow (2)^2 = 4 \\ \hline 104 \quad 04 &\leftarrow \text{1st 2 digits} \end{aligned}$$

$$\begin{aligned} 103 &= (100 + 3)^2 \\ + 3 &\leftarrow (3)^2 = 09 \\ \hline 106 \quad 09 &\leftarrow \end{aligned}$$

$$\begin{aligned} (107)^2 &= (100 + 7)^2 \\ + 7 &\leftarrow (7)^2 = 49 \\ \hline 114 \quad 49 &\leftarrow \end{aligned}$$

$$\begin{aligned} (98)^2 &= (100 - 2)^2 \\ - 2 &\leftarrow (2)^2 = 04 \\ \hline 96 \quad 04 &\leftarrow \end{aligned}$$

$$\begin{aligned} (91)^2 &= (100 - 9)^2 \\ - 9 &\leftarrow (9)^2 = 81 \\ \hline 82 \quad 81 &\leftarrow \end{aligned}$$

$$\begin{aligned} (112)^2 &= (100 + 12)^2 \\ + 12 &\leftarrow (12)^2 = 144 \\ \hline 124 \quad 44 &\leftarrow \end{aligned}$$

$$\begin{aligned} (112)^2 &= (100 + 12)^2 \\ + 12 &\leftarrow (12)^2 = 144 \\ + 1 &\leftarrow \text{carry} \\ \hline 125 \quad 44 &\leftarrow \end{aligned}$$

44 (Because we need fill only 2 digits)

$$\begin{aligned} (113)^2 &= (100 + 13)^2 \\ + 13 &\leftarrow (13)^2 = 169 \\ + 1 &\leftarrow \text{carry} \\ \hline 127 \quad 69 &\rightarrow \text{Ans} \end{aligned}$$

$$(99)^2 = (100 - 1)^2 = (1)^2 = 1$$

$$\underline{\underline{9801}}$$

★ Important No<sup>s</sup> -  $(88)^2 = (100 - 12)$  <sup>carry</sup>

$$\begin{array}{r} +12 \\ 100 \\ \hline 112 \end{array} \quad \begin{array}{r} 12 \\ 12 \\ \hline 144 \end{array} \leftarrow$$

$$(88)^2 = (100 - 12)$$

$$\begin{array}{r} -12 \\ 76 \\ \hline 76 \end{array} \begin{array}{r} 12 \\ 12 \\ \hline 144 \end{array}$$

+1 ← carry will always add up.

$$\underline{\underline{7744}} \text{ Ans}$$

88 is the only number whose square's 1st two digit is last two digits are same.

$$\begin{aligned} (24)^2 &= 576 \\ (25)^2 &= 625 \\ (26)^2 &= 676 \\ (27)^2 &= 729 = (9)^3 \end{aligned}$$

→ Any no ending with 5 → Square

$$\begin{array}{r} 9 \mid 5 \\ +1 \\ \hline 10 \\ \times 9 \\ \hline 90 \end{array} \quad \begin{array}{r} 90 \\ 25 \\ \hline \end{array} \text{ Always}$$

$$\begin{array}{r} 8 \mid 5 \\ +1 \\ \hline 9 \\ \times 9 \\ \hline 72 \end{array} \quad \begin{array}{r} 72 \\ 25 \\ \hline \end{array} \text{ always}$$

$$\begin{array}{r} 2 \mid 5 \\ +1 \\ \hline 3 \\ \times 3 \\ \hline 6 \end{array} \quad \begin{array}{r} 6 \\ 25 \\ \hline \end{array}$$



$$\begin{array}{l}
 \text{65} \xrightarrow{+1} 42 \text{ 25} \\
 \text{7} \\
 \hline
 42
 \end{array}
 \quad
 \begin{array}{l}
 10 \text{ 5} \xrightarrow{+1} 110 \text{ 25} \\
 11 \\
 \hline
 110
 \end{array}$$

→ No. closer to 50 (Finding squares)  
(Between 30 to 75)

$$\begin{array}{l}
 (52)^2 = (50 + 2)^2 \\
 \begin{array}{r}
 25 \\
 + 2 \\
 \hline
 27
 \end{array}
 \end{array}
 \quad
 \begin{array}{l}
 \rightarrow (2)^2 = 04 \\
 \text{Ans} = 2704
 \end{array}$$

$$\begin{array}{l}
 (53)^2 = (50 + 3)^2 \\
 \begin{array}{r}
 25 \\
 + 3 \\
 \hline
 28
 \end{array}
 \end{array}
 \quad
 \begin{array}{l}
 \rightarrow (3)^2 = 09 \\
 \text{Ans} = 2809
 \end{array}$$

$$\begin{array}{l}
 (58)^2 = (50 + 8)^2 \\
 \begin{array}{r}
 25 \\
 + 8 \\
 \hline
 33
 \end{array}
 \end{array}
 \quad
 \begin{array}{l}
 \downarrow \\
 (8)^2 = 64 \\
 \text{Ans} = 3364
 \end{array}$$

$$\begin{array}{l}
 \rightarrow (49)^2 = (50 - 1)^2 \\
 \begin{array}{r}
 25 \\
 - 1 \\
 \hline
 24
 \end{array}
 \end{array}
 \quad
 \begin{array}{l}
 \rightarrow (1)^2 = 01 \\
 \text{Ans} = 2401
 \end{array}$$

$$\begin{array}{l}
 (41)^2 = (50 - 9)^2 \\
 \begin{array}{r}
 25 \\
 - 9 \\
 \hline
 16
 \end{array}
 \end{array}
 \quad
 \begin{array}{l}
 \downarrow \\
 (9)^2 = 81 \\
 \text{Ans} = 1681
 \end{array}$$

$$(48)^2 = (50 - 2)^2$$

$$\begin{array}{r} 25 \\ - 2 \\ \hline 2304 \end{array} \quad \text{Ans.}$$

$(2)^2 = 04$

$$(62)^2 = (50 + 12)^2$$

$$\begin{array}{r} 25 \\ + 12 \\ + 1 \\ \hline 3844 \end{array}$$

$(12)^2 = 144$

$$(63)^2 = (50 + 13)^2$$

$$\begin{array}{r} 25 \\ + 13 \\ + 1 \\ \hline 3969 \end{array}$$

$(13)^2 = 169$

$$(24)^2 = 576$$

$$(25)^2 = 625$$

$$(26)^2 = 676$$

$$(27)^2 = 729 = (9)3$$

$$(21)^2 = 441$$

$$(22)^2 = 484$$

$$(23)^2 = 529$$

— x — x — x — x — x — x — x —

$$(14)^2 = 196$$

$$(15)^2 = 225$$

$$(16)^2 = 256$$

$$(17)^2 = 289$$

$$(18)^2 = 324$$

$$(19)^2 = 361$$

$$(20)^2 = 400$$

$$(21)^2 = 441$$

$$(22)^2 = 484$$

$$(23)^2 = 529$$

$$(24)^2 = 576$$

$$(25)^2 = 625$$

$$(26)^2 = 676$$

$$(27)^2 = 729 = (9)3$$

$$(28)^2 = 784$$

$$(29)^2 = 841$$

$$(30)^2 = 900$$