

MATHEMATICAL TRICKS

Square of two digit No.

1. $(ab)^2 = a^2(2ab)b^2$

e.g. (41)² = 1681 ✓

(b) (38)² = 1444

(c) (31)² = 961

(d) (32)² = 1024

(e) (43)² = 1849

2. Multiplying a Number by 11.

$11 \times ab = a(at+b)b$

e.g. (a) 11 x 53 = 583

(b) 72 x 11 = 792

(c) 83 x 11 = 913

(d) 58 x 11 = 638

3. Multiplying a two digit Number

e.g. (a)
$$\begin{array}{r} 51 \\ \times 21 \\ \hline 1071 \end{array}$$

(b)
$$\begin{array}{r} 53 \\ \times 21 \\ \hline 1113 \end{array}$$

(c)
$$\begin{array}{r} 51 \\ \times 12 \\ \hline 732 \end{array}$$

4. Square Root of two digit Number

$$\begin{aligned} \sqrt{2} &= 1.414 \\ \sqrt{3} &= 1.732 \\ \sqrt{4} &= 2.0 \\ \sqrt{5} &= 2.2 \\ \sqrt{6} &= 2.4 \\ \sqrt{7} &\approx 2.6 \\ \sqrt{8} &\approx 2.8 \\ \sqrt{9} &\approx 3.0 \\ \sqrt{10} &\approx 3.2 \end{aligned}$$

e/g (a) $\sqrt{63} = \sqrt{9 \times 7}$
 $= 3 \times 2.6 = 7.8$

(b) $\sqrt{28} = \sqrt{7 \times 4}$
 $= 2.6 \times 2 = 5.2$

(c) $\sqrt{72} = \sqrt{9 \times 8}$
 $= 3 \times 2.8 = 8.4$

(d) $\sqrt{18} = \sqrt{9 \times 2} = 3(1.4)$
 $= 4.2$

$$\sqrt{9} = 3 = 9.8$$

$$\frac{\sqrt{9}}{3} = \frac{9.8}{9.8} = 1$$

UNKNOWN SQUARE ROOT

$$\text{Unknown Sq. root} = \text{Known Sq. root} - \frac{\text{Known Sq.} - \text{Unknown Sq.}}{2 \times \text{Known Sq. root}}$$

e/g (a) $\sqrt{17} = 4 - \frac{16 - 17}{2 \times 4}$

$$= 4 - \frac{-1}{8} = 4 + \frac{1}{8}$$

$$\sqrt{17} = 4.125$$

(b) $\sqrt{18} = 4 - \frac{16 - 18}{2 \times 4} = 4 + \frac{2}{8}$
 $\sqrt{18} = 4.25$

$$\textcircled{c} \sqrt{26} = 5 - \frac{25-26}{2 \times 5} = 5 + \frac{1}{10} = 5.1$$

$$\textcircled{d} \sqrt{28} = 5 - \frac{25-28}{2 \times 5} = 5 + \frac{3}{10} = 5.3$$

$$\textcircled{e} \sqrt{42} = 6 - \frac{36-42}{2 \times 6} = 6 + \frac{6}{12} = 6.5$$

How to find cube root

eg

$1^3 = 1$	}	$x = (175,616)^{\frac{1}{3}} = \sqrt[3]{175,616}$
$2^3 = 8$		$x = 56$
$3^3 = 27$		
$4^3 = 64$		
$5^3 = 125$		
$6^3 = 216$		
$7^3 = 343$		
$8^3 = 512$		
$9^3 = 729$		

~~$x = (551608)^{\frac{1}{3}} = \sqrt[3]{551608}$~~

$x = (54,872)^{\frac{1}{3}} = 38$

$x = \sqrt[3]{140608} = 52$

$\sqrt[3]{40607} = 51.99$

~~$x =$~~

$2 + 4 + 6 + 8 + 10$

$$S_n = n(n+1) = 5(5+1) = 30$$