

# Vedic Maths

## Digital Sum (D.S)

Rule 1 ÷

$$\begin{array}{r} 9 \overline{) 1234} \quad (137 \\ \underline{9} \\ 33 \\ \underline{27} \\ 64 \\ \underline{63} \\ \underline{1} \end{array}$$

Rule 2 ÷ Divisibility Rule

of 9 is Sum of all the digits  
is a multiple of 9.

$$1234 \Rightarrow 1+2+3+4$$

$$= 10$$

$$= \frac{10}{9} \text{ Rem } (1)$$

$$\begin{array}{r} 9 \overline{) 10} \\ \underline{9} \end{array}$$

$$\underline{1 \text{ (Rem)}}$$

Rule 3 :-  $\rightarrow 1274632$

$$= 1+2+7+4+6+3+2$$

$$= 25$$

$$= \frac{25}{9} \text{ Rem } (7)$$

$$= 9 \overline{) 25} \text{ (2)}$$
$$\begin{array}{r} 18 \\ \underline{\phantom{00}} \\ 7 \text{ (Rem)} \\ \underline{\phantom{00}} \end{array}$$

OR

$\rightarrow 1274632$  [Cancel out the numbers whose sum is 9]

$$= 1\cancel{2}\cancel{7}4\cancel{6}\cancel{3}2 \text{ --- Rem } (7)$$

$$\rightarrow 632$$

$$6+3+2 = 11 \text{ (Rem 2)}$$

$$= \frac{11}{9}$$

$$9 \overline{) 11} \quad (1)$$

$$\underline{9}$$

$$\underline{2 \text{ (Rem)}}$$

$$(09)$$

$$632$$

$$= \cancel{6} \cancel{3} 2$$

$$= 2 \text{ (Rem)}$$

Rule 4:- Add all the digits of a number till we reach a single digit. This single digit is called a remainder.

$$\rightarrow 123$$

$$1+2+3 = 7 \text{ (Rem)}$$

$$\rightarrow 478127$$

$$4+7+8+1+2+7 = 29$$

$$\downarrow$$

$$2+9 = 11$$

$$\downarrow$$

$$1+1 = 2 \text{ (Rem)}$$

$$\rightarrow 471 = 4+7+1$$

$$= 12$$

$$\downarrow$$

$$= 1+2 = 3 \text{ (Rem)}$$

$$\rightarrow 741283$$

$$= 7+4+1+2+8+3$$

$$= 25$$

$$\downarrow$$

$$2+5 = 7 \text{ (Rem)}$$

Rule 5 ÷

Digital Sum ÷

Add all the digits of a

number till reach a single digit. This single digit is

called a Digital Sum or a remainder.

→ All the multiples of '9' will have a digital sum '9' and a remainder as '0'.

eg: (i)  $2781 = 2+7+8+1$

$$= 18$$

$$= 9$$

$$\text{Digital sum} = 9$$

$$\text{Remainder} = 0$$

(ii)  $271$

$$= 2+7+1$$

$$= 10$$

$$= 1+0$$

$$= 1$$

$$\text{D.S} = 1$$

$$\text{Remainder} = 1$$

(iii)  $478$

$$= 4+7+8$$

$$= 19$$

$$= 1+9$$

$$= 10$$

$$= 1+0$$

$$= 1$$

$$\text{D.S} = 1$$

$$\text{Rem} = 1$$

(iv)  $74128$

$$= 7+4+1+2+8$$

$$= 22$$

$$= 2+2$$

$$= 4$$

$$\text{D.S} = 4$$

$$\text{Rem} = 4$$

Rule 6:

		Rem			Rem
1	$\rightarrow \frac{1}{9}$	$\rightarrow 1$	$\xrightarrow{\quad}$	$1+9 \rightarrow \frac{10}{9}$	$\rightarrow 1$
2	$\rightarrow \frac{2}{9}$	$\rightarrow 2$	$\xrightarrow{\quad}$	$2+9 \rightarrow \frac{11}{9}$	$\rightarrow 2$
3	$\rightarrow \frac{3}{9}$	$\rightarrow 3$	$\xrightarrow{\quad}$	$3+9 \rightarrow \frac{12}{9}$	$\rightarrow 3$
4	$\rightarrow \frac{4}{9}$	$\rightarrow 4$	$\xrightarrow{\quad}$	$4+9 \rightarrow \frac{13}{9}$	$\rightarrow 4$
5	$\rightarrow \frac{5}{9}$	$\rightarrow 5$	$\xrightarrow{\quad}$	$5+9 \rightarrow \frac{14}{9}$	$\rightarrow 5$
6	$\rightarrow \frac{6}{9}$	$\rightarrow 6$	$\xrightarrow{\quad}$	$6+9 \rightarrow \frac{15}{9}$	$\rightarrow 6$
7	$\rightarrow \frac{7}{9}$	$\rightarrow 7$	$\xrightarrow{\quad}$	$7+9 \rightarrow \frac{16}{9}$	$\rightarrow 7$
8	$\rightarrow \frac{8}{9}$	$\rightarrow 8$	$\xrightarrow{\quad}$	$8+9 \rightarrow \frac{17}{9}$	$\rightarrow 8$
9	$\rightarrow \frac{9}{9}$	$\rightarrow 0$	$\xrightarrow{\quad}$	$9+9 \rightarrow \frac{18}{9}$	$\rightarrow 0$

'9' can be ignored in this case.

Rule 7 ÷ All the multiples of 9 will give a digital Sum as '9' and remainder as '0'.

eg ÷ (i) 36

$$= 3 + 6$$

$$\text{D.S} = 9$$

$$\text{Rem} = 0$$

(ii) 198

$$= 1 + 9 + 8$$

$$= 18$$

$$= 1 + 8$$

$$\text{D.S} = 9$$

$$\text{Rem} = 0$$

Rule 8 ÷

(i)

$$\underline{11} \times \underline{18}$$

$$\begin{array}{cc} \text{Rem} & \text{Rem} \\ (2) & (0) \end{array}$$

$$2 \times 0$$

$$\begin{array}{c} \text{Rem} \\ (0) \end{array}$$

$$= \underline{198}$$

$$= \begin{array}{c} \text{Rem} \\ (0) \end{array}$$

$$= \begin{array}{c} \text{Rem} \\ (0) \end{array}$$

$$= \begin{array}{c} \text{Rem} \\ (0) \end{array}$$

$$\text{L.H.S} = \text{R.H.S}$$

(ii) 
$$\frac{64 + 23}{9}$$

$64 \rightarrow 6 + 4 = 10 \Rightarrow 1 + 0 = 1 \text{ (Rem)}$

$23 \rightarrow 2 + 3 = 5 \text{ (Rem)}$

$$\frac{1+5}{9} = \frac{6}{9} = \text{Rem } (6)$$

(iii)

$9 \times 6 = 54 \xrightarrow{\text{D.S}} 5 + 4 = 9 \xrightarrow{\text{Rem}} 0$

$9 \times 11 = 99 \xrightarrow{\text{D.S}} 9 + 9 = 18 \Rightarrow 1 + 8 = 9 \xrightarrow{\text{Rem}} 0$

Rule  $\div 9$

$x \times 8 = 136$

$$x = \frac{136}{8} = \frac{1}{8}$$

If we have the Denominators as 1, 2, 4, 5, 7, 8 etc  
Convert the denominator value as '1' by multiplying with



certain number

$$\text{eg: } x \times 8 = 1\cancel{3}\cancel{6}$$

$$x = \frac{1}{8} \times \frac{8}{8} = \frac{8}{64} = \frac{8}{6+4} = \frac{8}{10} = \frac{8}{1+0} = \frac{8}{1}$$

$$\rightarrow \frac{1 \times 1}{1 \times 1}, \frac{1 \times 5}{2 \times 5}, \frac{1 \times 7}{4 \times 7}, \frac{1 \times 2}{5 \times 2}, \frac{1 \times 4}{7 \times 4}, \frac{1 \times 8}{8 \times 8}$$

Denominator	1	2/5	4/7	8
multiply with	1	5/2	7/4	8

Rule  $\div 10 \div$  (i)  $8 - 2 = 6$

(ii)  $2 - 8 = -6$

$$-6 + 9 = 3 \text{ (Rem)}$$

whenever if we get negative value convert them to positive by adding '9'

(iii)  $2 - 15 = -13 \Rightarrow -(1+3)$

$$= -4$$

$$= -4 + 9$$

$$= 5 \text{ (Rem)}$$

Rule 11 ÷ Merits ÷ (i) It works in all four fundamental operations (+, -, ×, ÷)

(ii) It gives accurate values

Demerits ÷ (i) It does not work on approximate values

eg ÷  $g = 9.8 \text{ m/s}^2$

[acceleration  
due to gravity]

If we take  $g = 10 \text{ m/s}^2$  for our convenience it doesn't give correct results.

$$2 + 3 + 0 + 2 + 0 = 7$$

$$1) \quad \cancel{4} \cancel{3} \cancel{7} \cancel{5} \cancel{1} + \cancel{2} \cancel{5} \cancel{6} \cancel{5} \cancel{3} + \cancel{3} \cancel{5} \cancel{4} \cancel{3} \cancel{3} + \cancel{2} \cancel{5} \cancel{6} \cancel{7} + \cancel{3} \cancel{4} \cancel{2} =$$

$$\cancel{a)} \quad \cancel{1} \cancel{0} \cancel{7} \cancel{5} \cancel{4} \cancel{6} - 5$$

$$\cancel{b)} \quad \cancel{1} \cancel{0} \cancel{6} \cancel{6} \cancel{4} \cancel{6} - 5$$

$$\cancel{c)} \quad \cancel{1} \cancel{0} \cancel{7} \cancel{8} \cancel{4} \cancel{6} - 8$$

$$\checkmark d) \quad 107746 - 7$$

$$(937)^2$$

$$1^2 = 1$$

$$2) (937)^2 =$$

a) ~~877969~~ — 1

b) ~~834569~~ — 8

c) ~~867969~~ — 0

d) ~~887669~~ — 8

$$\underbrace{7} \times \underbrace{1} + \underbrace{6} \times \underbrace{3} - x = 1$$

3) 88% of 370 + 24% of 210 - ? = 118

$$7 + 0 - x = 1$$

$$x = 7 - 1 = 6$$

~~a) 318 - 3~~

~~b) 268 - 7~~

~~c) 256 - 4~~

☒ d) 258 - 6

$$5 \times 6 - \frac{2}{5} \times \frac{2}{2} = x - 1$$

$$3 - 4 = x - 1 \Rightarrow -1 = x - 1 \Rightarrow x = -1 + 1 = 0$$

$$x = 0$$

$$4) \quad 113 * 114 - 1127/23 = ? - 100$$

$$a) \quad 12743 - 8$$

$$b) \quad 12823 - 7$$

$$c) \quad 12933 - 0$$

$$d) \quad 12464 - 8$$

$$2^2 + 2 \times 6 = x + 6 \times 7$$

$$4 + 3 = x + 6$$

$$x = 7 - 6 = 1$$

$$5) (17.3)^2 + 47\% \text{ of } 1248 = ? + 24 \times 4.156$$

a) ~~786.106~~ — 1

b) ~~786.105~~ — 0

c) ~~786.206~~ — 2

d) ~~786.306~~ — 3

$$\frac{7}{8} \times \frac{8}{8} + 8 \times 3$$

$$2 + 6 = 8$$

6)  $11122/134 + 26\% \text{ of } 471 = ?$

~~a) 205.46 - 8~~

~~b) 203.56 - 7~~

~~c) 202.66 - 7~~

~~d) 208.46 - 2~~



$$\sqrt{1 + \underbrace{90 \times 91 \times 92 \times 93}_0} = \sqrt{1+0} = \sqrt{1} = (\sqrt{1})^2 = 1$$

7)  $(1+90*91*92*93)^{0.5} = ?$

a)  $(\cancel{8}3\cancel{7}1)^2 = 1^2 = 1$

b)  $(\cancel{8}7\cancel{2}1)^2 = 0^2 = 0$

c)  $(\cancel{8}34\cancel{1})^2 = 7^2 = 49 = 13 = 4$

d)  $(\cancel{8}23\cancel{1})^2 = 5^2 = 25 = 7$

## Compound Interest

$$\rightarrow A = P \left[ 1 + \frac{R}{100} \right]^N$$

$$\rightarrow C \cdot I = A - P$$

$$\rightarrow C \cdot I = P \left[ 1 + \frac{R}{100} \right]^N - P$$

## Simple Interest

$$\rightarrow I = \frac{P T R}{100}$$

$$\rightarrow A = P + S \cdot I$$

$$A = P + \frac{P T R}{100}$$

$$A = P \left[ 1 + \frac{T R}{100} \right]$$

$$C.I. = P \left\{ \left[ 1 + \frac{R}{100} \right]^N - 1 \right\}$$

$P = 11280$   
 $N = 1.5 = 1 \text{ year } 6 \text{ mon}$   
 $= 18 \text{ months}$

8) Find the compound interest on Rs. 11280 for 1.5 yrs at 38 % per annum, the interest being payable half yearly?

$$N = \frac{18}{6} = 3 \text{ times}$$

$$R = 38\% \text{ P.A.}$$

$$= 19\% \text{ half yearly}$$

~~a) 7483.93552~~ → ①  
~~b) 7648.39552~~ → ④  
~~c) 7728.59352~~ → ③  
~~d) 7732.56452~~ → ⑤

$$C.I. = 11280 \left\{ \left[ 1 + \frac{19}{100} \right]^3 - 1 \right\}$$

$$= 11280 \times \left[ \left( \frac{119}{100} \right)^3 - 1 \right]$$

$$= 3 \times \left[ \frac{8}{1} - 1 \right]$$

$$= 3 \times 7$$

$$= 3$$

$$A = P \left[ 1 + \frac{R}{100} \right]^N$$

$$R = 10\% \text{ P.A}$$

$$N = 4 \text{ yrs}$$

$$A = 136893.35$$

9) The amount received at 10 % per annum compound interest after 4 years is Rs 136893.35. What was principal?

$$P = \frac{136893.35}{\left[ 1 + \frac{10}{100} \right]^4} = \frac{\cancel{136893.35}}{(1.1)^4}$$

$$= \frac{2}{7} \times \frac{4}{4}$$

$$= \frac{8}{1} = 8$$

~~a) 93500 — 8~~

~~b) 86450 — 5~~

~~c) 92500 — 7~~

~~d) 97500 — 3~~

$$\text{weighted Avg} = \frac{w_1 x_1 + w_2 x_2 + \dots + w_n x_n}{w_1 + w_2 + \dots + w_n}$$

10) Giri buys 14 sarees at an average cost of Rs 835. If he buys 11 sarees more at an average cost of Rs 645. What will be the average cost of all the sarees he buys together?

$$\text{Avg} = \frac{14 \times 835 + 11 \times 645}{14 + 11} = \frac{5 \times 7 + 2 \times 6}{5 + 2}$$

☒ a) ~~751.40~~ — 8

☒ b) ~~734.34~~ — 3

☒ c) ~~725.64~~ — 6

☒ d) ~~767.44~~ — 1

$$= \frac{8 + 3}{7} \times \frac{4}{4}$$

$$= \frac{2 \times 4}{1}$$

$$= 8$$

$$\text{Total Income} = \text{Rs } x$$

$$H.H = 24$$

$$\text{ENT} = 16$$

$$\text{Edu} = \frac{28}{68}$$

$$\begin{aligned} \text{Rem} &= 100 - 68 \\ &= 32 \end{aligned}$$

11) From the monthly income, A spends 24 % on household expense, 16 % on entertainment, 28 % on education. Out of remaining he donates 72 % money and left with an amount of Rs 2403.52. Find his monthly income?

$$\begin{aligned} \text{Rem} &= 100 - 72 = 28 \\ \text{Donation} \end{aligned}$$

~~a)  $24725 - 2$~~

~~$$x \times \frac{32}{100} \times \frac{28}{100} = 2403.52$$~~

~~b)  $26825 - 5$~~

~~$$x \times 5 \times 1 = 7$$~~

~~c)  $25625 - 2$~~

~~$$x = \frac{7}{5} \times \frac{2}{2} = 5$$~~

~~d)  $29325 - 3$~~

population at the beginning =  $x$

$$x \times \frac{107}{100} \times \frac{94}{100} \times \frac{103}{100} = 5665223819$$

12) The population of a town is increased by 7 % at the end of 1<sup>st</sup> year , decreased by 6 % at the end of 2<sup>nd</sup> year and again increased by 3 % at the end of 3<sup>rd</sup> year. If the population at the end of 3<sup>rd</sup> was 5665223819, then the population at the beginning of first year was.

$$x \times 1.07 \times 0.94 \times 1.03 = 5665223819$$

~~a) 5262500000~~

②  $x \times 8 \times 4 \times 4 = 2$

~~b) 5642500000~~

④  $x \times 128 = 2$

~~c) 5555500000~~

⑦  $x = 1$

~~d) 5468500000~~

①

$$\underline{5 \times 5} + \underline{7 \times 7} - \underline{5 \times 5}$$

$$13) \cancel{3.92} * \cancel{3.92} + 2.05 * 2.05 - 4.10 * \cancel{3.92} = ?$$

$$17 + 4 - 17 = 4$$

- ~~a)~~ ~~3.2879~~ - 2
- ~~b)~~ ~~3.6689~~ - 5
- ~~c)~~ ~~3.4969~~ - 4
- ~~d)~~ 3.8879 - 8



$$\frac{3}{5} \times \frac{2}{2} + 7 \times 5 - 4 \times 6 = 4x$$

14) 375375/455 + 13.3% of 8600 - 15.7% of 9240  
= 40% of X. Find X = ?

$$\cancel{6} + 8 - \cancel{6} = 4x$$

a) ~~1116.3~~ - 3  $x = 2$

b) ~~1295.3~~ - 2

c) ~~1026.4~~ - 4

d) ~~1305.3~~ - 3

$$= 2 \times 6 - 8 + 2 \times 6$$

$$= 3 - 8 + 3 = -2$$

15)  $443 \times 456 - 8792 + 20\% \text{ of } 555 = ?$

$$-2 + 9 = 7$$

- a) ~~184321~~ - 1
- b) ~~193327~~ - 7
- c) ~~206357~~ - 5
- d) ~~189332~~ - 8

$$= \frac{2}{4} \times \frac{7}{7} + 4 \times 1 \times 8 + 6 \times 3 + 8 - 1$$

$$= 5 + 5 + 0 + 7 \Rightarrow 8$$

16) ~~63~~17.75/~~34~~15 + 1.12\*~~1.18~~\*1.25 + ~~1.39~~2% of  
 1605 + (1.4)^3 - (~~1.45~~)^2 = ?

- ☒ a) ~~26.4851~~ - 8
- ☒ b) ~~28.6232~~ - 5
- ☒ c) ~~24.3524~~ - 2
- ☒ d) ~~27.6828~~ - 6

$$m = 2 + 4 + 4 = 10 = 1$$

$$N = 3 + 0 + 0 = 3 = 3$$

$$m + N = 1 + 3 = 4$$

17) If  $M = 0.2 + (0.2)^2 + (0.02)^2$ ,  $N = 0.3 + (0.33)^2 + (0.333)^2$  find  $M + N = ?$

- ~~a) 0.931359 - 3~~
- ~~b) 0.861299 - 8~~
- ~~c) 0.760189 - 4~~
- ~~d) 0.692359 - 7~~

$$I = \frac{PTR}{100}$$

$$P = 381500$$

$$T = 5$$

$$R = 8.375 \text{ P.A}$$

18) Find the simple interest on principal Rs 381500 in 5 years at the rate of 8.375 % per annum?

$$I = \frac{381500 \times 5 \times 8.375}{100}$$

☒ a) ~~159753.125~~ - 2

=

☒ b) ~~153648.375~~ - 6

$$\frac{8 \times 5 \times 5}{100} = \frac{2}{1} = 2$$

☒ c) ~~167052.625~~ - 7

☒ d) ~~146512.225~~ - 1

$$\frac{1}{8} = \frac{1}{8} \times \frac{8}{8} = \frac{8}{1}$$

19) Find  $X = 1/8 + 1/0.8 + 1/0.08 + 1/0.008 \dots$  up to 8 terms.

$$8 + 8 + 8 + 8 \dots + 8 \text{ terms}$$

$$= 8 \times 8 = \underline{64} = 1$$

- ~~a) 1355555.375 - 8~~
- ~~b) 1466666.625 - 3~~
- ~~c) 1388888.875 - 1~~
- ~~d) 1244444.125 - 4~~

$$x \times 1.22 + 5827.12 = 1210765$$

$$x \times 5 + 7 = 4$$

20) When a number is increased by 22 % and added to 5827.12. It becomes 1210765, then find the number ?

$$5x = -3$$

$$x = \frac{-3}{5} \times \frac{2}{2} = \frac{-6}{1}$$

$$x = -6 + 9 = 3$$

$$x = 3$$

- a) ~~987654~~ - 3
- b) ~~978544~~ - 1
- c) ~~998765~~ - 8
- d) ~~934843~~ - 4

$$C \times 1.24 \times 0.15 = 223200$$

$$C \times 7 \times 6 = 9$$

$$C \times 6 = 9$$

21) A trader marks the cost of a car 24 % above its price and allows a discount of 15%. If the discount is Rs 223200, then the cost price of the car is ?

check option (d)

$$C = 1425000 \times$$

$$= 1425000 \times 1.24 \times 0.15$$

$$= \cancel{1425000} \times \frac{5}{4} \times \frac{3}{20}$$

$$= 35625 \times 7.5$$

$$= 267187.5$$

~~a) 1160000 — 8~~

~~b) 1200000 — 3~~

~~c) 1580000 — 5~~

~~d) 1425000 — 3~~