21/12/20

Ch 1
Vedic Mathematics

Q 1 Divided by nikhilam method ÷

1. 1245 ÷ 97

Ans

97	12	45
03	0 ↓	3 06
	12	81
	Q	R

Base = 100
devi. = 100 - 97
=) 03

2 311 ÷ 8

8	31	1
2	6 ↓	14
	37 + 1	15 R - 8
	38 Q	7 R

Base = 10
devi. = 10 - 8
= 2

8) 15 (1Q
-8
7R

3 1013 ÷ 88

88	10	13
12	1 ↓	2 12
	11	45
	Q	R

Base = 100
devi. = 100 - 88
= 12

Q 2 Find the square of following method:

4. 103 5. 95 6. 204 7. 225

Squaring

(A) Sutra - Nikhilam (Base method)

$(\text{number})^2 = \text{number} \pm \text{Deviation} / (\text{deviation})^2$

4 103

Ans $(103)^2 = \text{No} = 103$, Base = 100 ; Devi. = 03

$(103^2) = \text{No.} \pm \text{devi.} / (\text{devi.})^2$

$= 103 + 03 / (03)^2$

$= 106 / 09 = 10609$ Ans.

5. 95

Ans $(95)^2 = \text{No.} = 95$, Base = 100 , Devi. = 05

$(95)^2 = \text{No.} \pm \text{devi} / (\text{devi})^2$

$= 95 - 05 / (-05)^2$

$= 90 / 25$

$= 9025$ Ans

(B) Sub base method

$(\text{Number})^2 = \text{S.B}(\text{number} + \text{Devi.}) / (\text{Devi.})^2$

6. 204

Ans $(204)^2 \Rightarrow N = 204 \quad B = 100 \quad D = 04 \quad \text{S.B} = 2$

$(204)^2 \Rightarrow$ S. S.B$(N + D)$ / $(D)^2$

$(204)^2 \Rightarrow 2(204 + 04) \,/\, (04)^2$

$2(208) \,/\, 16$

$= 416 \,/\, 16.$

$= 41616$ Ans

7. (225)

Ans $(225)^2 = N \Rightarrow 225 \quad B \Rightarrow 100 \quad D \Rightarrow 25 \quad S.B \Rightarrow 2$

$(225)^2 = S.B(N + D) \,/\, (D)^2$

$(225)^2 = 2(225 + 25) \,/\, (25)^2$

$= 2(250) \,/\, 625$

$= 500 \,/\, 625$

$= 50625$ Ans

Q3 Find the cube of following numbers:-

(A) Base method

$(\text{Number})^3 = (N + 2 \times D) \,/\, 3 \times D^2 \,/\, D^3$

(8) $(15)^3$

Ans $N \Rightarrow 15, \quad B \Rightarrow 10, \quad D \Rightarrow +5$

$\Rightarrow (N + 2 \times D) \,/\, 3 \times D^2 \,/\, D^3$

$\Rightarrow (15 + 2 \times 5) \,/\, 3 \times 5^2 \,/\, 5^3$

$\Rightarrow (15 + 10) \,/\, 75 \,/\, 125$

$\Rightarrow 25 \,/\, 75 \,/\, \underset{+}{1}25$

$= 25 \,/\, 87 \,/\, 5$

3375 Ans.

(9) $(91)^3$

Ans $N \Rightarrow 91, \quad B \Rightarrow 100, \quad D = -09$

$\Rightarrow (N+2xD) / 3xD^2 / D^3$
$\Rightarrow (91+2x-09) / 3x-09^2 / -09^3$
$\Rightarrow (91-18) / 3x81 / -729$
$\Rightarrow 73 / 243 / -729$
$\Rightarrow 73 / 235 / 800 - 729$
$\Rightarrow 73 / 235 / 71$
753571. Ans

B

(B) Sub Base method

$(N)^3 = (SB)^2 (N+2xD) / S.B \times 3 + D^2 / D^3$

(10) $(32)^2$

$32 - 30$

$N = 32, \quad S.B = 3, \quad B = 10, \quad D = 2$

$= (S.B)^2 (N+2xD) S.B \times 3 \times D^2 / D^3$
$= (3)^2 (32+2x2) / 3 \times 3 \times 2^2 / 2^3$
$= 9(36) / 36 / 8$
$= 324 / 36 / 8.$

(11) $(208)^3$

Ans $N = 208, \quad S.B = 2, \quad B = 100, \quad D = 08$ $208 - 200$

$= (S.B)^2 (N+2xD) / SB \times 3 \times D^2 / B^3$
$= (2)^2 (208+2x08) / 2 \times 3 \times 08^2 / 08^3$
$= 4(224) / 384 / 512$
$896 / 384 / 512$
$896 / 389 / 12$
899 8912 Ans

4/7/20

* Divide by Dhwajanka Method :-

(12) 4532 ÷ 112

Ans.

Flagged no.	2	4	5	3	2
			1		5
main no.	11				
		4	0	Q	52 R

Steps :-

	Q	R	New Number
45 ÷ 11	4	1	13 - 4×2 ⇒ 5
5 ÷ 11	0	5	52 - 0×2 ⇒ 52

(13) 1234 ÷ 42

Flagged no.	2	1	2	3	4
			4		3
Main No.	4				
		32		92	16 R

Steps

	Q	R	New Number
12 ÷ 4	3	0	03 - 6 ⇒
12 ÷ 4	2	4	43 - 4 ⇒ 39
39 ÷ 4	9	3	34 - 18 ⇒ 16

(14) 98765 ÷ 87

Flagged no.	7	9 8 7 6	5
		↓ 3 6	5
Main no.	8		
		1 1 3 5 Q	20. R

Steps ÷

	Q	R	New number
9 ÷ 8	1	1	18 − 1X7 ⇒ 11
11 ÷ 8	1	3	37 − 1X7 ⇒ 30
30 ÷ 8	3	6	66 − 3X7 ⇒ 45
45 ÷ 8	5	5	55 − 5X5 ⇒ 20

(15) 2101532 ÷ 879

Flagged no.	9	2 1 0 1 8 5 3	72 2
		↓ 3 6 ↓ 2 ↓ 5	
main no.	87		
		2 3 9 0 Q	.722R.

	Q	R	New number
210 ÷ 87	2	36	361 − 2X9 ⇒ 343
343 ÷ 87	3	82	825 − 3X9 ⇒ 798
798 ÷ 87	9	15	153 − 9X9 ⇒ 72
72 ÷ 87	0	72	72 − 0X9 ⇒ 722

★ Divide by Sutra Paravartya method

(16) $1154 \div 103$

	I	II	III
Division	103	1 1	5 4
Devi. Digit	03		
Transpose	$\bar{0}\bar{3}$	$\bar{0}$	$\bar{3}$
Digit		↓ ↓	$\bar{0}$ $\bar{3}$
		1 1 Q	2 1 R.

Devi = 103 − 100 = +03

(17) $1358 \div 118$

	I	II	III
D	113	1 3	5 8
D.D	13		
T.D	$\bar{1}\bar{3}$	$\bar{1}$	$\bar{3}$
		↓	$\bar{2}\bar{6}$
		1 2 Q	0 2 R.

Devi = 113 − 100 ⇒ 13

(18) $1432 \div 88$

	I	II	III
D	8 8	1 4	3 2
D.D	$\bar{1}\bar{2}$		
T.D	1 2		
		1	2
		↓ ↓	6 0
		1 5	1 1 2
		1 6 Q	2 4 R

Devi = 88 − 100 + 1 − 88

= −12

(9) 14885 ÷ 123.

	I	II	III
D	123	1 4 8	8 5
D.D	23		
T.D	$\bar{2}\,\bar{3}$	$\bar{2}$ $\bar{3}$	
		$\bar{4}$	$\bar{6}$
			$\bar{2}$ $\bar{3}$
	1	2 1	0 2 R

Deci. = 123 - 100 = +23