Number System

Types of numbers

└ Real

  ├ Rational (Non - Terminating & repeating) $\frac{p}{q}$

  └ Irrational (Non Terminating & non repeating)

  $(\pi, \sqrt{2}, \sqrt{3})$

Co-Prime numbers - Set of two numbers having HCF = 1

Ex - (2, 3), (5, 7), etc.

Perfect number -

Ex. $6 = 1, 2, 3, 6$

Adding factor Sum $= 1 + 2 + 3 = 6$

Ex - $21.2\bar{5}$

Sol $\dfrac{2125 - 212}{90}$

Ex - $1.2555.... = 1.2\bar{5} = \dfrac{125 - 12}{90} = \dfrac{113}{90}$

$1.2\overline{56} = \dfrac{1256 - 12}{990} = \dfrac{1244}{990} \dfrac{622}{495} = \dfrac{622}{495}$

$1.256256... = 1.\overline{256} = \dfrac{1256 - 1}{999} = \dfrac{1255}{999}$

$0.2333... = 0.2\bar{3} = \dfrac{23 - 2}{90} = \dfrac{21}{90} \dfrac{7}{30} = \dfrac{7}{30}$

Divisbility rule
for 7- @998

$79\underbrace{(8}_{\times 2}$

$$\begin{array}{r} 79 \\ -16 \\ \hline \cancel{6}6\underbrace{(3)}_{\times 2} \end{array}$$

$11 \longrightarrow \left(\underset{\text{odd posi.}}{\text{Sum}} - \underset{\text{even posi}}{\text{Sum}}\right) \longrightarrow$ It should be 0 or 11.

10593
9 - 9 = 0

- 88 — 11 × 8
- 12 — 4 × 3

→ Remainder theorem

Dividend = (Divisor × Quotient) + remainder   { remainder < Divisor }

$$\begin{array}{r} 4 \leftarrow \text{Quotient} \\ \text{Divisor} - 6\overline{)25} \rightarrow \text{dividend} \\ \underline{24} \\ 1 \rightarrow \text{remainder} \end{array}$$

= (5x × x) + 3x
= 25 × 5 + 3 × 5
= 125 + 15
= 140

$8x = \dfrac{15}{3}$

$x = 5$

- Remainder of —
$\dfrac{123 \times 120}{11} = 2 \times 10 = \dfrac{20}{11} = 9$

15-9
6

Q. What is the remainder when 3^7 is divided by 8?

- **Negative Reminder** 121

$$\frac{\overset{+2}{123} \times \overset{-1}{120}}{11} = -2 = 11 - 2 = 9$$

Factors — The values that divides the no. Completely

i) $N = 2^a \times 3^b \times 7^d = (a+1)(b+1)(d+1)$ } No. of factors

$$300 = 2^2 \times 3^1 \times 5^2$$
$$= (2+1)(1+1)(2+1)$$
$$= 3 \times 2 \times 3$$
$$= 18$$

2	300
2	150
3	75
5	25
	5
	1

ii) Odd No. of factors $= (b+1)(d+1)$

iii) Even No. of factors $= (a+1) \, a \, (b+1)(d+1)$

iv) Sum of all the factors $=$

$$300 = (2^0 + 2^1 + 2^2)(3^0 + 3^1)(5^0 + 5^1 + 5^2)$$
$$= (1+2+4)(1+3)(1+5+25)$$
$$= 7 \times 4 \times 31$$
$$a^0 + a^1 + a^2 + \cdots + a^n = \frac{a^{n+1} - 1}{a-1} = \left(\frac{2^{a+1} - 1}{2-1}\right)$$

v) Product of the factors $= (N)^{\text{Total no. of factor}/2}$

$$(300)^{18/2} = (300)^9$$

- **Perfect Square** —

$$N = 2^5 \times 3^6 \times 5^3$$
$$(2^0, 2^2, 2^4)(3^0, 3^2, 3^4, 3^6)(5^0, 5^2)$$
$$3 \times 4 \times 2 = 24$$

- **Perfect Cube** — $(2^0, 2^3)(3^0, 3^3, 3^6)(5^0, 5^3)$
$$2 \times 3 \times 2 = 12$$

Note -

$$36 \Leftarrow 3^2 \times 2^2 = 9$$

$$(36)^{9/2} = (36)^{8/2} \times \sqrt{36}$$

Multiples -

$$30 = 2^1 \times 3^1 \times 5^1$$

$$\underline{\underline{Q}} \quad \frac{(17)^{20}}{9} = \frac{(8)^{20}}{9} = \frac{(-1)^{20}}{9} = 1$$

$$\begin{array}{r} 9\overline{)17} \\ -18 \\ \hline -1 \end{array}$$

$$\underline{\underline{Q.}} \quad \frac{44 \times 43 \times 46 \times 47}{9} = \frac{-1 \times -2 \times 1 \times 2}{9}$$
$$= 4$$

$$\underline{\underline{Q.}} \quad \frac{2^{30}}{7} = \frac{(2^3)^{10}}{7} = \frac{8^{10}}{7} = 1$$

$$\underline{\underline{Q.}} \quad \frac{3^{80}}{80} = \frac{(3^4)^{20}}{80} = \frac{(81)^{20}}{80} = \frac{(1)^{20}}{80} = 1$$

Unit digits — Right most digit of a no. is (called) Unit digit.

1 Simple Product type
2 Power Type

$$Ex - 27\underline{8 * 6}23$$

24 → Unit digit

$$(127)^{23} \rightarrow (127)^{\frac{123}{4}} \rightarrow +3 \rightarrow \text{Remainder}$$

$$7^3 \rightarrow 34\boxed{3}$$

$$\begin{array}{r} 6 \\ 49 \\ \times 7 \\ \hline 343 \end{array}$$

Cyclicity No.

$$[4, 9] \to 2$$

$4^1 \to 4$ ⟍
$4^2 \to 16$ ⟍
$4^3 \to 64$
$4^4 \to 256$

$9^1 \to 9$
$9^2 \to 81$
$9^3 \to 729$

$$[2, 3, 7, 8] \to 4$$

$2^1 \to 2$
$2^2 \to 4$
$2^3 \to 8$
$2^4 \to 16$
$2^5 \to 32$
$2^6 \to 64$
$2^7 \to 128$
$2^8 \to 256$

$$2^q \to \quad 2^{q/4} \xrightarrow{\text{(+1)} \to \text{Rem.}} \quad \to 2^1 \to 2$$

Cyclicity of ~~least don't~~ 4 is applicable in every scenario.

Ex. $(2354)^{1048} \to$

$$(248)^{1587} \to (248)^{\frac{1587}{4} \to \text{(+3)}} \to (8)^3 \to 8^2 \times 8^1$$

$\downarrow$ 64×8

$\downarrow$

$3\textcircled{2} \to$ Unit digit

$42/4 + 2$

88
32
57
4
17
16
1

$(456)^{87} \times (307)^{42}$

$$6 \times (307)^{42/4} \to 6 \times 7^2$$

6×49

$\textcircled{4} \to$ Unit digit

$$= 2^4 \times 3^2 \times 5^2$$

$$= 5 \times 3 \times 3$$

$$= 45$$

$$3600 = 36 \times 100$$
$$2^2 \times 3^2 \times 2^2 \times 5^2$$
$$= 2^4 \times 3^2 \times 5^2$$
$$= 5 \times 3 \times 3$$
$$= 45$$

$$330 = 33 \times 10$$
$$3^1 \times 11^1 \times 2^1 \times 5^1$$
$$= 2 \times 2 \times 2 \times 2^1$$
$$= 16$$

$$= (2^0 \times 2^1 \times 2^2 \times 2^3 \times 2^4)(3^0 \times 3^1 \times 3^2)(5^0 \times 5^1 \times 5^2)$$
$$= (1 \times 2 \times 4 \times 8 \times 16)(1 \times 3 \times 9)(1 \times 5 \times 25)$$
$$=$$

$$3600 = \frac{2^5 - 1}{2 - 1} \times \frac{3^3 - 1}{3 - 1} \times \frac{5^3 - 1}{5 - 1}$$

$$= \frac{32 - 1}{1} \times \frac{26}{2} \times \frac{124}{4}$$

$$= 31 \times 13 \times 31$$

$$= 12493$$

$$(3600)^{45/2} = (3600)^{44/2} \times \sqrt{3600}$$
$$= (3600)^{22} \times (3600)^{1/2}$$
$$= \qquad \times 60$$

$$\text{even factor} = 4 \times 3 \times 3$$
$$= 4 \times 9$$
$$= 36$$

$$= 2 \times 2^1 \times 5^1 \times 17$$
$$= 2^2 \times 5^1 \times 17^1$$
$$= 2 \times 2 \times 2$$
$$= 8$$

2	340
17	17
	1

- **Trailing Zeros** (Number of zeros at the end)
  → zero can be produced when we have a pair of 2 and 5.

  201!

5	201
5	40
5	8
	1

→ 49 zeros

5	20
5	④

→ 4 zeros

5	100
5	20
	4

→ 24 zeros

5	56
5	11
	2

→ 13 zeros

$$\frac{50\,200}{5}$$

Q. $100! + 200!$

Sol. 24 zeros

$$Ex - \frac{157\ 210}{20\ 400} \times 3$$
$$\overline{6\ 110}$$

- LCM and HCF

  LCM (Least Common Multiple)

  $$LCM = 2^3 \times 3^2 \times 5$$
  $$= 8 \times 9 \times 5$$
  $$= 360$$

2	24, 36, 40
2	12, 18, 20
2	6, 9, 10
3	3, 9, 5
3	1, 3, 5
5	1, 3, 5
	1, 1, 1

  LCM = 80

8	8, 16, 40, 80
2	1, 2, 5, 10
5	1, 1, 5, 5
	1, 1, 1, 1

  HCF (Highest Common factor)

  360
  700
  385
  1285

Q. Four bells ring at an interval 3min, 4min, 5min and 6 min. respectively. If all the four bells ring at 9am first, when will it ring again?

Sol

2	3, 4, 5, 6
2	3, 2, 5, 3
3	3, 1, 5, 3
5	1, 1, 5, 1
	1, 1, 1, 1

$$= 2^2 \times 3 \times 5$$
$$= 60 \text{ min}$$

Q. HCF
=
Sol   H
       L

 대한 If

Q. Ra
=   The

Sol
=

Q. HCF of $9/10, 12/25, 18/35$ and $21/40$ is ?

Sol $\dfrac{HCF \rightarrow}{LCM \rightarrow}$ $\dfrac{4}{10}$ $\dfrac{12}{25}$ $\dfrac{18}{35}$ $\dfrac{21}{40}$ $= \dfrac{3}{1400}$

~~शेष~~ of LCM of — — — — — —$21/40$?

$\dfrac{LCM \rightarrow}{HCF \rightarrow}$ $\dfrac{4}{10}$ $\dfrac{12}{25}$ $\dfrac{18}{35}$ $\dfrac{21}{40}$ =

Q. Ratio of two numbers is $3:4$ and their H.CF is 4.
Their L.C.m is

Sol
$$3x \times 4x = 4 \times 4cm$$
$$12x = 4 \times L.C.m$$
$$\smile$$

$$3 \times 4 = 12$$
$$4 \times 4 = 16.$$

$$LCM = 48$$

Q. The least no., which divided by 12,15,20 & 54
leaves in each case a remainder of 8 is:

LCM of 12,15,20.& 54

Sol LCM = 540

$$\frac{540}{+8}$$
548 Ans

Q. Find the smallest no., which when divided by
3,4 & 5 leaves remainder 1, 2 and 3 respectively?

Sol LCM = 60

Divisor 3 4 5 → 60
Remainder 1 2 3
$$\overline{222}$$

$$\frac{60}{-2}$$
58 Ans

Q. The greatest no. which on dividing 1657 and 2037
leaves remainders 6 and 5 respectively, is:

Sol
$$\frac{1657}{-6}$$
1651

$$\frac{2037}{-5}$$
2032

HCF of 1651 & 2032 is 127 Ans

Q. Find the greatest no. which on dividing divide 43, 91 and 183 so as to leave the same remainder in each case.

Sol

$$\underbrace{43, \overset{48}{\overbrace{}} 91 \overset{92}{\overbrace{}} \text{and } 183}_{140}$$

HCF of 48 92 140 is 4 //Ans

~~ਬਣੇ~~

• Arithmetic Progression

$$a_n = a + (n-1)d$$

Q. 1, 3, 5, 7 ... which term of this AP is 55?

$$a_{55} = 1 + (55-1)2$$
$$55 = 1 + \cancel{55-2}(n-1)2$$
$$5\cancel{5} = \cancel{aa+2}(n-1)2$$
$$\cancel{55 \cancel{2} 109}$$
$$n-1 = \frac{54}{2}$$
$$n-1 = 27$$
$$n = 28$$

Q find 5th term of series 20, 15, 10, ---

$$a_5 = 20 + (15-1) \times (-5)$$
$$= 20 + 14 \times (-5)$$
$$= \cancel{20 - 20} - 50^{th}$$

- Average

$$\text{Averages} = \frac{\text{Sum of Observation}}{\text{No. of Observation}}$$

Q. 80. 85 90 95 100

$$\frac{80+100}{2} = \frac{180}{2} = 90$$

Q. 75 80 85 90 95 100 (Middal term)

$$\frac{5}{2} = 2.5$$

$$85 + 2.5 = 87.5$$

$$90 - 2.5 = 87.5$$

Formulae

Numbers	Sum	Averge = Sum/n
First n natural no.	$\frac{n(n+1)}{2}$	$\frac{(n+1)}{2}$
First n odd no.	n^2	n
first n even no.	$n(n+1)$	$(n+1)$
first n natural no.	$\frac{n(n+1)(2n+1)}{6}$	$\frac{(n+1)(2n+1)}{6}$
Consecutive no. Or Numbers in A.P	$\frac{n(\text{first term}+\text{last term})}{2}$	$\frac{(\text{first term}+\text{last term})}{2}$

Q. The
the
i.) 22
ii) 2
iii) 2
iv) 25

- Averg

- ave

Q. Th

Sum

Ass.

Actuel

Q. The average of 5 consecutive number is 21. Find the largest number

i.) 22
ii) 23
iii) 24
iv) 25   19 20 (21) 22 23

- Average of 100 ~~natural~~ whole no.
    0,1,2 ----- 99

    $\frac{99}{2} = 49.5$

- Average of 100 even no.
    2,4, ------ 20

    $\frac{22}{2} = 11$

Q. The average of first 17 multiples of 5?

        5,10,15, ----- 85

        $\frac{90}{2} = 45$

            20   19   17   23   25
                                    $+5$ $+5 \to 4$
    Sum→ 0   -1 -5 $+5$
    Ass . Avg → 20

            $\frac{4}{5} = 0.8$

    Actual Avg. → 20 + 0.8 = 20.8

Combined Average

	No	× Avg	= Sum
Gr I	30	80	= 2400
Gr II	20	50	= 1000
	$\overline{50}$		$\overline{3400}$

$$\frac{3400}{50} = 68$$

Q.

A	36	30	= 1080
B	24	40	= 960
	$\overline{60}$		$\overline{2040}$

$$\frac{2040}{60} = 34$$

Q The average of marks obtained by 120 Candidates was 35. If the average of passed Candidate was 39 and that of failed Candidate was 15, the no. of Candidates who passed the examination is?

Sol

$$\frac{\alpha}{15}$$

	No	× Avg	= Sum
overall	120	35	= 4200
Pass	x	39	= 39x
fail	(120-x)	15	= 15 (120-x)

Q. A man goes from home to his office at speed
of 40 km/h and return from office to home at a
speed of 60 km/h. Find the average speed during
whole journey.

Sol

$$\frac{2xy}{x+y} = \frac{2 \times 40 \times 60}{40+60} = \frac{2 \times 2400}{100}$$

$$= \frac{4800}{100}$$

$$= 48$$

• Equal Distribution of Data

Q. If the avg. weight of 10 students in a class is
30kg, when weight of teacher is also included new
average becomes 33. Find weight of teacher.

No	×	Avg	= Sum
10		30	= 300
$\overset{11}{\underset{(+1)}{\frown}}$		33	$\underline{363}$
			63

Q. The avg. weight of a class of 24 students is 30kg
when weight of the teacher is also included the
average weight is increases by 1 kg. what is the
weight of teacher in kg

No	Avg	Sum
24	30	720
25	31	$\underline{775}$
		55

Q. What is the remainder when 3^7 is divided by 8?

Sol $\dfrac{3^7}{8} = \dfrac{(3^2)^3 \times 3^1}{8} = \dfrac{9^3 \times 3}{8}$

$= \dfrac{(+1)^3 \times 3}{8} = \dfrac{3}{8} \rightarrow$ Divisor > Rem.

$= 3$

Q. $\dfrac{3^7}{10} = \dfrac{(3^2)^3 \times 3^1}{10} = \dfrac{(-1)^3 \times 3}{10}$

$= \dfrac{-3}{10}$

$= 10 - 3$

$= 7$

Q. $\dfrac{3^{10}}{10} = \dfrac{(3^2)^5}{10} = \dfrac{(9)^5}{10} = \dfrac{(-1)^5}{10}$

$= 10 - 1 = 9$

Q. $\dfrac{35^{113}}{9} =$

Q. $\dfrac{2^{33}}{9} = \dfrac{2^{32} \times 2}{9} = \dfrac{(2^3)^{16}}{9}$

$= \dfrac{(8)^{11}}{9} = \dfrac{(8)^{10} \times 8}{9}$

$= \dfrac{(-1)^{10} \times 8}{9} = \dfrac{-8}{9}$

$= -8 + 9 = 1$

Q.

Q.

Q.

Sol

Q $\frac{2^{34}}{9} = \frac{(2^3)^{11} \times 2^1}{9} = \frac{-1 \times 2}{9} = \frac{-2}{9}$

$= 9 - 2 = 7$

Q. $\frac{2^{99}}{10} = \frac{2^{98} \times 2}{10} = 8 \frac{(2^3)^{33}}{10}$

$= \frac{(8)^{33}}{10} = \frac{(-2)^{33}}{10} = \frac{(-2)^{11}}{10}$

$= \frac{2^{99}}{2 \times 5} = \frac{2^{98}}{5} = \frac{(2^2)^{49}}{5}$

$= \frac{(4)^{11}}{5} = (-1)^{49} = -1 + 5 = 4$

But

$4 \times 2 = 8$ __Ans__ (Because $\frac{2^{98} \times 2}{5 \times 2}$

Q. The average weight of 8 person increase by 2.5 kg when a new person comes in place of one of them weighting 65 kg. What might be the weight of the new person?

No.	Avg	Sum
8	+2.5	+20

__Sol__

8		$\frac{65}{85}$

Q: A teacher while calculating the avg. marks of 30 students of an examination by mistake enters a student's marks as 68, instead of 86 and obtained the average as 58. find the actual average.

Sol

No	Avg.	Sum
30	~~58~~+A	+18

	wrong	correct
	68	86
	+ 18	

$$30 \times (+A = 18$$
$$A = \frac{18}{30}$$
$$= 0.6$$

Actual average $= 58 + 0.6$
$$= 58.6$$

Q: A student's marks were wrongly entered as 83 instead of 63. Due to that the average marks of the class got ~~decreased~~ increased by 2. The no. of students in class is?

Sol

No	Avg	Sum
N.	2	~~83~~20

$$= \frac{20}{2}$$
$$= 10$$

Q.

No.	Avg	Sum
12	Avg	36

$$= \frac{36}{12}$$

$$= ^-3$$

Q. The average of a family is 24 yrs which is consisting of 5 members, out of which the youngest being 6 yrs old. What would be the avg. age of family just before his birth?

Sol

No.	Avg	Sum
5	24	120
4		$\frac{-30}{90} = 22.5$
		$\overline{4}$

Q. The average age of 10 members in a committee is increased by 3 yrs. When two men whose ages are 25 yrs and 35 yrs age of are replaced by two new men. Find the average a two new men.

$$10 \qquad +3 \qquad \frac{+30}{\frac{60}{\frac{90}{2}}} = 45$$

Q. If the average weight of 10 students in a class is 30 kg, when weight of teacher is also included new average becomes 33. Find weight of teacher.

NO	Avg	Sum
10	30	300
11	33	363
		63 kg

Q. The avg. marks of some students is 40 and 10 of them get 60 marks instead of 90 marks by mistake. After correction, the new average becomes 50. Find no. of students.

Sol

No	Avg	Sum
x	40	40x
10	+30	+300
x	50	

$$50x = 40x + 300$$
$$10x = 300$$
$$x = 30$$

Q. ~~The avg.~~ In a hostel there are 30 students and if the no. of students increased by 5 then the expense is increased by 40 per day. But the average expenditure diminishes by 3. find the original expenditure.

Sol

No	Avg	Sum
30	x	$30x$
35	$x-3$	$30x+40$

$$35x - 105 = 30x + 40$$
$$x = 29$$
$$30 \times 29 = 870$$

Q. A batsman has a certain average of runs for 16 innings. In the 17th inning, he makes a score of 85 runs there by increasing the average by 3. What is the avg. of 17 innings?

Sol

No	Avg	Sum
16	A	$16A$
17	$A+3$	$16A+85$

$$17(A+3) = 16A + 85$$
$$A = 34$$

17th inning
$$= A + 3$$
$$= 34 + 3 = 37$$

Q. If a batsman score 36 runs in his 18th innings so that his average is reduced by 3 run. Find the average of batsman upto 18th inning.

No	Avg	Sum
17	A	17A
18	A-3	17A+36

$$18A - 54 = 17A + 36$$
$$A = \cancel{22} \ 90$$

$$A - 3 = 90 - 3$$
$$= 87$$

Q. A baller whose balling average is 12·4 runs/wicket. He played his next match and takes 5 wickets for 26 runs; therefore his average is reduced by 0·4. Find the total no. of wickets taken by the baller.

Sol

No	Avg	Sum
x	12·4	12·4x
$x+5$	12·4-0·4 = 12	$\cancel{12x+60}$ 12·4x+26

$$12x + 60 = 12·4x + 26$$
$$0·4x = 34$$
$$x = \frac{340}{0·4}$$
$$= 85$$

$$x + 5 = 85 + 5 = 90$$

Q. The average temp. in Delhi for the first four days of the month was reported as 58°C. It reported as 60°C for 2nd, 3rd, 4th and 5th days. The ratio of the temperature of 1st and 5th day was 7:8. Find the temperature on the first day.

No	Avg	Sum
1,2,3,4	58	232
2,3,4,5	60	240
		$\overline{8°C}$

1, 5
7 : 8 ⟶ 8°C

7 → 8×7 = 56
8 → 64°C

• If $\underset{2}{\overset{3\ 5}{\frown}}$ ⟶ 8°C

3 → $\frac{8}{2}$ × 3 = 12°C
5 → $\frac{8}{2}$ × 5 = 20°C

Q. 6 friends went to a hostel for taking their lunch. 5 of them spend Rs 32 each while the 6th person spend 80 more than the average expenditure of all the 6 person. Find the total money spend on lunch.

NO	Avg	Sum
5	32	160
6	A	160+80 = 240+A
		+A

$6A = 160 + A + 80$
$5A = 240$
$A = 48$

$6 × A = 48 × 6 = 288$

- ## Digit Sum

1.

$58 \times 96 \times 62$

$\downarrow$ $\downarrow$ $\downarrow$

13 15 8

$\downarrow$ $\downarrow$

4 6

24 48

$\downarrow$ $\downarrow$

6 12

      $\downarrow$

      (3)

→ If Sum is 9 then ignore it.

a) 343248 ×
b) 345226 ×
c) 348216 → 3 ✓
d) 345236

two options
- If both give same answer than , we use unit digit rule.

2. $728 \times 456 \times 827$

$\downarrow$ $\downarrow$ $\downarrow$

17 15 17

$\downarrow$ $\downarrow$ $\downarrow$

8 6 8

48 24

$\downarrow$ $\downarrow$

12 6

$\downarrow$

3

a) 274467536
b) 275537536
c) 274567536
d) 274537536 → 15
             $\downarrow$
             6

4. 43751 + 25653 + 35433 + 2567 + 342 = ?

a) 107546
b) 106646
c) 107846
d) 107746

$$20 + 21 + 20$$
$$2 \quad 3 \quad 2$$
$$5 \quad 7$$

6. 12.25 × 7.2 + 84.33 = ?
   × 0 + 0 = 0

a. 182.51
b. 177.44
c. 173.33
d. 172.53

7. 6205 ÷ 73 × 13 − 376 = A^2
   13   10   4   7
   a
   4   16   42
   6   6

7. 6205 ÷ 73 × 13 − 346 = A^2
   4   1   4   7
   7   0 → 9

a) 29
b) 28
c) 27 → 9^2 → 81 → 9
d) 26

8. 6205 ÷ 23 × 13 − 376

$$\frac{4}{5} \times 4 - 7$$

$$\frac{4 \times 2}{5 \times 2} \times 4 - 7$$

$$\frac{8}{10} \times 4 - 7 \Rightarrow -2 + 9 \Rightarrow +7$$

10. $113 \times 114 - 1127 \div 23 + 100 = ?$

Sol $\quad 5 \times 6 - 11 \div 5 + 1$

$\underbrace{30}_{3}$ $\overset{2}{\underbrace{}}$ $\left.\begin{array}{c} 7\times2 \\ 5\times2 \\ \underline{7} \end{array}\right\}$ 3

USE
(BODMAS)

$3 - 4 + 1 = 0$

a) 12743

b) 12823

c) 12933

d) 12464

9. $88\% \text{ of } 370 + 24\% \text{ of } 210 - ? = 118$

$\underbrace{16}_{7}$ $\underbrace{10}_{7}$ $\quad \underbrace{6}_{\overset{18}{9}}$ $\quad 3$

$7 + 0 - x = 1$

$x = 6$