आपण काय शिकलो?

Addition, subtraction, Multiplication, Division :→ -28

1) Using Properties :→ 1) Addition :→ 256 + 172 = 228 + 200 = 1428

+28

42 = 6 × 7

54 = 9 × 6

102 = 17 × 6

85 = 17 × 5

112 = 16 × 7

126 = 14 × 9

2) Subtraction → 126 − 88 = 128 − 88 = 40 − 2 = 38

+2 , −2

→ 256 − 124 = 254 − 124 = 130 + 2 = 132

−2 ÷2 , +2

3) Multiply → 25 × 46 = 50 × 23 = 1150

×2

4) Division → $\frac{3969}{63} = \frac{3969}{7 \times 9} = \frac{567}{9} = 63$

Add. Sub. Mul. Div :→ Unit Place calculation

⇒ शेवटचा Digit ची Add. Sub. Mul. Division करताना Option चा वापर करावा.

1) $2455 + 3856 + 148 =$ ____ 9

2) $1238 - 399 = 18 - 9 =$ ____ 9

3) $48 \times 73 =$ ____ 4

4) $\frac{1156 \times 512}{34} = \frac{2}{4} =$ 3/8

Add. Sub. Mul Div:→ Digital Root calculation

→ sum of all digits of given Nos.

D 3479 = 14 = 5 → D.R

9 को Ignore करो.

1) Add → 3844 + 9356 = (1) + (5) = 6

D.R. Negative होने पर 9 Add करो.

2) sub: 13456 − 8344 = (1) − (1) = 0 = 9

3) Mul :→ (149) × (312) = (5) × (6) = 3

4) Div :→ $\frac{2401 \times 116}{49 \times 29} = \frac{(7) \times (8)}{(4) \times (2)} = \frac{(2)}{(8)} = 7$

Multiply :- Criss-cross

$$\begin{array}{r} a\ b \\ \times\ c\ d \\ \hline ac\,/\,ad+bc\,/\,bd \end{array}$$

1) $82 \times 63 = 5166$

2) $78 \times 84 = 6552$

3) $121 \times 84 = 10164$

4) $182 \times 56 = 10192$

5) $124 \times 115 = 14260$

square :- Criss-cross / $(a^2+2ab+b^2)$

1) $(42)^2 = 1764$ 2) $(64)^2 = 4096$ 3) $(184)^2 = 33856$

square Root :- 1) 1 to 100 (10 15 20 25 30 35 ... 100) 2) Unit Place

1) $\sqrt{2116} = 46$

46 47 48 49

2) $\sqrt{8281} = 91$

91 92 93 94

3) $\sqrt{7056} = 84$ ✓

81 82 83 84

Cube → (1 to 20)-Cube

1) $(34)^3$ = 27 108 144 64 = 39304

2) $(34)^3$ = Unit Place = 4
Digital Root = 1

Cube Root → (1 to 20 cube) + (1 to 10 Unit)

1) $\sqrt[3]{39304}$ = 34 2) $\sqrt[3]{10648}$ = 22

Decimal :→ 1) Add & Sub:- Decimal मागचे Digits Equal असावेत

121.37 + 44.2 = 121.37 + 44.20 = 165.57

32.8 − 18.345 = 32.800 − 18.345 = 14.455

Decimal :- 1) Multiply :-> → 4.6 × 3.2 = 14.72

→ 5.02 × 1.3 = 6.526 ✓

2) Division :-> $\frac{25.5}{0.17} = \frac{2550}{17} = 150$

→ $\frac{12.328}{0.08} = \frac{1232.8}{8} = 154.1$

Fraction :-> 1) Add sub :- Denominator Equal असावा. (L.C.M)

1) $\left(\frac{1}{5}\right)^{\times 3} + \left(\frac{2}{3}\right)^{\times 5} = \frac{3+10}{15} = \frac{13}{15}$ 2) $\frac{1}{2}^{\times 6} + \frac{3}{4}^{\times 3} - \frac{2}{3}^{\times 4} = \frac{6+9-8}{12} = \frac{7}{12}$

Mix Fraction

1) $\left(2\frac{1}{2}\right) \times \left(3\frac{1}{4}\right) = \left(\frac{5}{2}\right) \times \left(\frac{13}{4}\right)$

$= \frac{65}{8} = 8\frac{1}{8}$

2) Multiply :-> 1) $\frac{1}{2} \times \frac{3}{4} = \frac{3}{8}$ 2) $\frac{4}{5} \times \frac{10}{12} \times \frac{3}{8} = \frac{3}{12} = \frac{1}{4}$

3) Division :- $\frac{a}{b} \div \frac{c}{d} = \frac{a}{b} \times \frac{d}{c}$ 1) $\frac{1}{5} \div \frac{3}{4} = \frac{1}{5} \times \frac{4}{3} = \frac{4}{15}$

Linear Equation :→ 1) एक ही प्रकार के Variable
2) Power – 1

1) $8x + 16 = 48 \Rightarrow 8x = 32 \Rightarrow x = \frac{32}{8} = 4$ ✓

2) $\left(\frac{3x}{2}\right) + (5) = 20 \Rightarrow \frac{3x}{2} = 15 \Rightarrow x = 15 \times \frac{2}{3} = 10$ ✓

3) $\frac{x^{\times 8}}{5} + \frac{x^{\times 5}}{8} = 65 \Rightarrow \frac{8x + 5x}{40} = 65 \Rightarrow \frac{13x}{40} = 65 \Rightarrow x = 200$

Simultaneous Equation :→ 1) चरों से अधिक Variable ② Power Equal

1) $4x + 3y = 21$
$5x - 2y = 9$

$x = \frac{(-42) - (21)}{(-8) - (15)} = \frac{-69}{-23} = 3$

$4(3) + 3y = 21$
$3y = 21 - 12 = 9$
$y = 3$

Quadratic Eqⁿ → 1) Power वाले Variable

2) Power – 2, 4, 6, 8, 10

$ax^2+bx+c=0$

1) $x^2+14x+48=0$

6 8

$x=-6/-8$

2) $x^2-14x+48=0$

-6 -8

$x=6/8$

5) $x^2=144$

$x=12/-12$

3) $x^2+2x-48=0$

8 -6

$x=-8/6$

4) $x^2-2x-48=0$

-8 6

$x=8/-6$

6) $x^2-8x=0$

$x=0/8$

Law of Indices :- 1) Base equal असावा।

Base	Index/power
1) ×	+
2) ÷	−

⇒ Base different असेल तर तो equal करताना अवघड लहानात लहान Base मध्ये convert करावे.

1) $8^4 \times 8^5 = 8^9$

2) $\frac{7^8}{7^5} = 7^3$

3) $(8^2)^3 = 8^6$

4) $64^8 = 8^p$

$(8^2)^8 = 8^{16}$

5) $\frac{7^4 \times (49)^3}{(343)^3} = 7^{\boxed{p=1}}$

$\frac{7^4 \times (7^2)^3}{(7^3)^3} = \frac{7^4 \times 7^6}{7^9} = \frac{7^{10}}{7^9}$