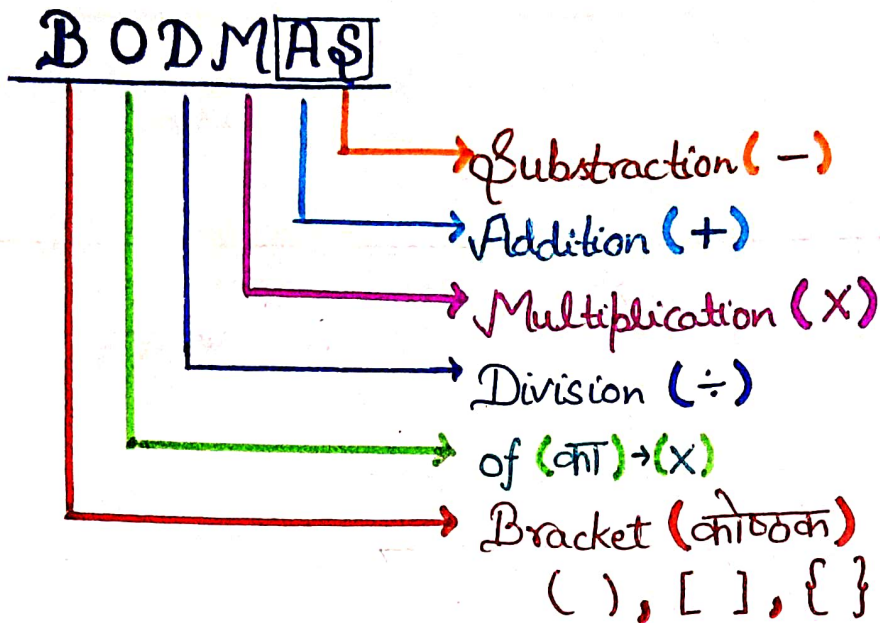


SIMPLIFICATION



$$\rightarrow 15 + 3 - 4 + 6 - 2$$

$$24 - 6 = 18$$

$$\rightarrow 10 \times 7 + 3 - 1 + 2 \times 3$$

$$70 + 3 - 1 + 6$$

$$79 - 1 = 78$$

$$\rightarrow 25 \times 10 \div 2 + 18 \div 9 + 7 - 3$$

$$25 \times 5 + 2 + 7 - 3$$

$$125 + 2 + 7 - 3$$

$$134 - 3$$

$$131$$

$$\rightarrow 100 \times 50 \div 2 \text{ of } 5 \times 5 + 18 \div 2 \times 3 - 6$$

2×5

$$100 \times 50 \div 10 \times 5 + 18 \div 2 \times 3 - 6$$

$$100 \times 5 \times 5 + 9 \times 3 - 6$$

$$2500 + 27 - 6$$

$$2527 - 6$$

$$2521$$

$$\hookrightarrow 75 \times 25 \div 5 \left[\underset{\substack{(20+10) \\ 30}}{10 \times 2 + 20 \div 2} \right] + 15 \div 3 \times 2 \text{ of } 3$$

$$75 \times 25 \div 5 \times 30 + 15 \div 3 \times 6$$

$$75 \times 5 \times 30 + 15 \div 3 \times 6$$

$$75 \times 150 + 5 \times 6$$

$$11250 + 30$$

$$11280$$

$$\# \frac{a}{b} \div \frac{c}{d}$$

$$= \frac{a}{b} \times \frac{d}{c}$$

$$\# \left(\frac{\frac{a}{b}}{\frac{c}{d}} \right) = \frac{a \times d}{b \times c}$$

$$\underline{\text{Ex:-}} \quad \frac{\left(\frac{7}{12} \right)}{\left(\frac{24}{35} \right)} = \frac{7 \times 35}{12 \times 24}$$

$$\# a \div b \div c$$

$$a \div \frac{b}{c}$$

$$a \div b \div c$$

$$\frac{a \times c}{b}$$

$$\frac{a \times c}{b}$$

$$\underline{\text{Ex:}} \quad 10 \div 3 \div 9$$

$$\frac{10 \times 9}{3} = 30$$

BLOCK METHOD

$$\hookrightarrow \begin{array}{|c|c|c|c|c|} \hline 100 \div 10 \times 2 & + & 70 \div 5 & - & 30 \div 5 \times 2 & + & 10 \text{ of } 3 \div 5 \\ \hline 10 \times 2 & & 14 & & 6 \times 2 & & 30 \div 5 \\ \hline 20 & & & & 12 & & 6 \\ \hline \end{array}$$

$$20 + 14 - 12 + 6$$

$$40 - 12$$

$$28$$

TYPE-I

- 1) Simplify the following
निम्नलिखित को सरल करें।

$$-2 - [3 - \{3 - (4 - 5)\}]$$

$$\begin{aligned} & \quad \quad \quad (-1) \\ & \quad \quad \quad \{3 + 1\} \\ & \quad \quad \quad [3 - 4] \\ & \quad \quad \quad [-1] \end{aligned}$$

$$-2 + 1 = -1$$

- 2) Find the value of $(919 + 9.019 + 0.919 + 9.0019)$

$(919 + 9.019 + 0.919 + 9.0019)$ का मान ज्ञात कीजिए।

$$\begin{array}{r} 9.019 \\ 0.919 \\ 9.0019 \\ \hline 18.9399 \end{array}$$

$$\begin{aligned} 919 + 18.9399 \\ 937.9399 \end{aligned}$$

- 3) Find the value of $(3+11) \times 4 \div (6+1) - 21$

$(3+11) \times 4 \div (6+1) - 21$ का मान ज्ञात कीजिए।

$$14 \times 4 \div 7 - 21$$

$$214 \times \frac{4}{7} - 21$$

$$8 - 21$$

$$-13$$

- 4) निम्नलिखित को सरल कीजिए।

Simplify the following.

$$[25 - 48 \div 6 + 12 \times 2] + 78 - [5 + 3 \text{ of } (25 - 2 \times 10)]$$

$$25 - 8 + 24$$

$$49 - 8$$

$$41$$

$$\begin{aligned} 25 - 20 \\ 5 \end{aligned}$$

$$5 + 3 \text{ of } 5$$

$$\begin{aligned} 5 + 15 \\ 20 \end{aligned}$$

$$41 + 78 - 20$$

$$119 - 20$$

$$99$$

5) Find the value of the following expression.
निम्न व्यंजक का मान ज्ञात करें।

$$3 \times 8 \div 9 \text{ of } 6 - 2 \div 3 \times (5 - 2) \times 2 + 18 \div 3 \text{ of } 3$$

$$\begin{aligned} & \frac{3 \times 8 \div 54}{\cancel{8} \times \cancel{8} \times \frac{4}{9}} \quad \frac{2}{\cancel{3}} \times \cancel{3} \times 2 \quad \frac{18 \div 9}{2} \\ & \frac{4}{9} - 4 + 2 \\ & \frac{4}{9} - 2 \\ & \frac{-14}{9} = -1\frac{5}{9} \end{aligned}$$

6) Find the simplified value
सरलीकृत मान ज्ञात करें।

$$(8.5 - 2\frac{1}{2}) \text{ of } 16.5 - [27.4 - \{10\frac{1}{4} \text{ of } 2.5 - (1\frac{1}{2} - 1\frac{1}{5})\}]$$

$$\begin{aligned} & \frac{2.5}{2.5} \quad \frac{(1.5 - 1.2)}{0.3} \\ & \{10.25 \text{ of } \frac{2.5}{10} - 0.3\} \\ & 25.625 - 0.3 \\ & (25.325) \\ & \left\{ \begin{aligned} \frac{1}{4} &= 0.25 \\ \frac{1}{2} &= 0.5 \\ \frac{1}{5} &= 0.2 \end{aligned} \right\} \\ & 27.400 \\ & - 25.325 \\ & \hline & 2.075 \\ & 6 \text{ of } 16.5 \\ & \frac{99}{99} \\ & 99 - 2.075 \\ & 96.925 \end{aligned}$$

7) If $\frac{(88 \div 8 \times k - 3 \times 3)}{(6^2 - 7 \times 5 + k^2)} = 1$ then which of the following can be the value of k ?

यदि $\frac{(88 \div 8 \times k - 3 \times 3)}{(6^2 - 7 \times 5 + k^2)} = 1$ है तो निम्नलिखित में से k का मान क्या हो सकता है?

$$11 \times k - 9 = 36 - 35 + k^2$$

$$11k - 9 = 1 + k^2$$

$$\boxed{k^2 - 11k + 10 = 0}$$

$$k^2 - 10k - k + 10 = 0$$

$$k(k-10) - 1(k-10) = 0$$

$$(k-10)(k-1) = 0$$

$$k-10 = 0$$

$$k = 10$$

$$k-1 = 0$$

$$k = 1$$

8) If $1\frac{1}{4} \times (5\frac{3}{4} \div \frac{2}{7} \text{ of } k) \div 2\frac{7}{8} - 3\frac{3}{4} = (17-4) \div 2 \text{ of } 2$ then what will be the value of $\frac{k+1}{k-1}$?

यदि $1\frac{1}{4} \times (5\frac{3}{4} \div \frac{2}{7} \text{ of } k) \div 2\frac{7}{8} - 3\frac{3}{4} = (17-4) \div 2 \text{ of } 2$ है तो $\frac{k+1}{k-1}$ का मान क्या होगा?

$$\frac{23}{4} \div \frac{2k}{7}$$

$$\begin{aligned} 13 \div 4 \\ = \frac{13}{4} \end{aligned}$$

$$\frac{5}{4} \times \left(\frac{23}{4} \times \frac{7}{2k} \right) \div \frac{23}{8} - \frac{15}{4}$$

$$\frac{5}{4} \times \frac{23}{4} \times \frac{7}{2k} \times \frac{8}{23} - \frac{15}{4}$$

$$\frac{35}{4k} - \frac{15}{4} = \frac{13}{4}$$

$$\frac{35}{4k} = \frac{15}{4} + \frac{13}{4} = \frac{28}{4}$$

$$28k = 35$$

$$\boxed{\frac{k}{1} = \frac{35}{28} \times \frac{5}{4}}$$

C & D Rule

$$\frac{k+1}{k-1} = \frac{5+4}{5-4} = \frac{9}{1}$$

TYPE - II

9) Solve the following
निम्नलिखित को हल करें:

$$N \frac{(70 + 5 \times 2 \div 10 + 15 - 10)}{(25 \times 6 + 2)} = ?$$

(N) $70 + 5 \times \frac{2}{10} + 5$ (D) 152

$$70 + 1 + 5$$

$$76$$

$$\frac{N}{D} = \frac{76}{152} = \frac{1}{2}$$

10) What is the value of $\frac{46 + \frac{3}{4} \text{ of } 32 - 6}{37 - \frac{3}{4} \text{ of } (34 + 6)}$?

N $(46 + \frac{3}{4} \text{ of } 32 - 6)$ का मान क्या है ?

D $(37 - \frac{3}{4} \text{ of } (34 + 6))$

(N) $46 + 24 - 6$

$$46 + 18$$

$$= 64$$

(D) $37 - \frac{3}{4} \times 40$

$$37 - 30$$

$$7$$

$$\frac{N}{D} = \frac{64}{7}$$

11) Find the value of $\frac{1\frac{1}{2} \div 3\frac{1}{4} + \frac{1}{2} \div \frac{13}{14} + \frac{1}{5}}{\frac{1}{5} \times 3\frac{1}{2} - \frac{1}{3} \div 1\frac{3}{4} \times 3\frac{1}{2}}$

N $(1\frac{1}{2} \div 3\frac{1}{4} + \frac{1}{2} \div \frac{13}{14} + \frac{1}{5})$ का मान ज्ञात कीजिए।

D $(\frac{1}{5} \times 3\frac{1}{2} - \frac{1}{3} \div 1\frac{3}{4} \times 3\frac{1}{2})$

$$\textcircled{N} \quad \frac{3}{2} \div \frac{13}{4} + \frac{1}{2} \div \frac{13}{14} + \frac{1}{5}$$

$$\frac{3}{2} \times \frac{4^2}{13} + \frac{1}{2} \times \frac{14^2}{13} + \frac{1}{5}$$

$$\frac{6}{13} + \frac{7}{13} + \frac{1}{5}$$

$$\frac{13}{13} + \frac{1}{5}$$

$$1 + \frac{1}{5} = \frac{6}{5}$$

$$\frac{N}{D} = \frac{\left(\frac{6}{5}\right)}{\left(\frac{1}{30}\right)}$$

$$\frac{6 \times 30^6}{5} = 36$$

$$\textcircled{D} \quad \frac{1}{5} \times \frac{7}{2} - \frac{1}{3} \div \frac{7}{4} \times \frac{7}{2}$$

$$\frac{7}{10} - \frac{1}{3} \times \frac{4^2}{7} \times \frac{7}{2}$$

$$\frac{7}{10} - \frac{2}{3} = \frac{1}{30}$$

12) What is the value of $\frac{2+7 \times 7 \div 9 \text{ of } 9+6 \div 6 \times 2}{4 \div 4 \text{ of } 5+7 \times 7 \div 7-6+4}$?

N $\left(\frac{2+7 \times 7 \div 9 \text{ का } 9+6 \div 6 \times 2}{4 \div 4 \text{ का } 5+7 \times 7 \div 7-6+4} \right)$ का मान क्या है ?

$$\textcircled{N} \quad 2+7 \times 7 \times \frac{1}{81} + \frac{6}{6} \times 2$$

$$2 + \frac{49}{81} + 2$$

$$4 + \frac{49}{81} = \frac{324+49}{81}$$

$$\frac{373}{81}$$

$$\frac{N}{D} = \frac{\left(\frac{373}{81}\right)}{\left(\frac{26}{5}\right)}$$

$$\frac{373 \times 5}{81 \times 26} = \frac{1865}{2106}$$

$$\textcircled{D} \quad \frac{1}{5} \times \frac{4}{20} + 7 \times \frac{7}{7} - 6 + 4$$

$$\frac{1}{5} + 7 - 6 + 4$$

$$\frac{1}{5} + 5$$

$$\frac{26}{5}$$

1. $3 - (9 - 3 \times 8 \div 2) = ?$

- (a) -21
- (b) 6
- (c) 0
- (d) $\frac{21}{2}$

2. $2 \times 3 \div 2$ का $3 \times 2 \div (4 + 4 \times 4 \div 4$ का $4 - 4 \div 4 \times 4) = ?$

- (a) 8
- (b) 1
- (c) 4
- (d) 2

3. $5 \div 5$ का $5 \times 2 + 2 \div 2$ का $2 \times 5 - (5 - 2) \div 6 \times 2 = ?$

- (a) $\frac{9}{5}$
- (b) $\frac{19}{10}$
- (c) 19
- (d) $\frac{23}{2}$

4. $(320 + 342 + 530 + 915) \div (20 + 22 - x + 18) = 43$, then find the value of x .

$(320 + 342 + 530 + 915) \div (20 + 22 - x + 18) = 43$, तो x का मान ज्ञात कीजिए।

- (a) 11
- (b) 23
- (c) 26
- (d) 15

5. $4 \left\{ 2 \left(\frac{3}{4} \text{ का } 24 - 1 \right) + 3(7 \div x) - 5 \times 8 + 1 \right\} = (20)^2$ है, तो x का मान क्या है?

- (a) 0.625
- (b) 0.2
- (c) 0.75
- (d) 0.4

6. Solve the following.

निम्नलिखित को हल कीजिए।

$\left[25^2 + 8 \div 2^3 - \left\{ 16 + (28 \text{ का } 7 \div 2^2) - \left(18^2 \div 12^2 \text{ का } \frac{1}{8} \right) \right\} \right]$

- (a) 721
- (b) 626
- (c) 529
- (d) 579

7. Find the value of the following expression.

If '+' means '-', '-' means '+', 'x' means '÷' and '÷' means 'x', then the value of the equation $\frac{42-12 \times 3+8 \div 2+15}{8 \times 2-4+9 \div 3}$ will be.....

निम्न व्यंजक का मान ज्ञात करें।

यदि '+' का अर्थ '-', '-' का अर्थ '+', 'x' का अर्थ '÷' और '÷' का अर्थ 'x' होता हो, तो समीकरण $\frac{42-12 \times 3+8 \div 2+15}{8 \times 2-4+9 \div 3}$ का मान.....होगा।

(a) $\frac{15}{19}$

(b) $-\frac{5}{3}$

(c) $-\frac{15}{19}$

(d) $\frac{5}{3}$

8. $\left(\frac{2+7 \times 7 \div 9 \text{ का } 9+6 \div 6 \times 2}{4 \div 4 \text{ का } 5+7 \times 7 \div 7-6+4} \right)$

(a) $\frac{1865}{2106}$

(b) $\frac{1857}{2507}$

(c) $\frac{1664}{2305}$

(d) $\frac{1734}{2707}$

9. $\frac{(132 \div 12 \times x - 3 \times 3)}{(5^2 - 6 \times 4 + x^2)}$

What will come in place of x , ($x < 10$) where = 1?

$\frac{(132 \div 12 \times x - 3 \times 3)}{(5^2 - 6 \times 4 + x^2)}$

के स्थान पर क्या आएगा x , ($x < 10$) जहाँ = 1 है?

(a) 2

(b) 4

(c) 3

(d) 1

10. If x is the square of the number when $1\frac{2}{7}$ of $\left(\frac{2}{5} \text{ of } 6\frac{1}{4} + \frac{3}{7}\right)$ is divided by $11\frac{1}{4}$, then the value of $81x$ is:

यदि x उस संख्या का वर्ग है जब $1\frac{2}{7}$ का $\left(\frac{2}{5} \text{ का } 6\frac{1}{4} + \frac{3}{7}\right)$ को $11\frac{1}{4}$ से विभाजित किया जाता है, तो $81x$ का मान है:

(a) 36

(b) 16

(c) 9

(d) 4

ANSWER SHEET

1	2	3	4	5	6	7	8	9	10
B	D	B	A	B	D	C	A	D	A

Worksheet solution

Sol 1

$$\begin{aligned} & 3 - (9 - 3 \times 8 \div 2) \\ &= 3 - (9 - 3 \times 4) \\ &= 3 - (9 - 12) \\ &= 3 - (-3) = 6 \end{aligned}$$

Sol-2

$$\begin{aligned} & 2 \times 3 \div 2 \text{ का } 3 \times 2 \div \\ & (4 + 4 \times 4 \div 4 \text{ का } 4 - 4 \div 4 \times 4) \\ &= 2 \times 3 \div 6 \times 2 \div \\ & (4 + 4 \times 4 \div 16 - 4 \div 4 \times 4) \\ &= 2 \div (5 - 4) \\ &= 2 \end{aligned}$$

Sol-3

$$\begin{aligned} & 5 \div 5 \text{ का } 5 \times 2 + 2 \div 2 \text{ का } \\ & 2 \times 5 \div (5 - 2) \div 6 \times 2 \\ & 5 \div 25 \times 2 + 2 \div 4 \times 5 - (5 - 2) \div 6 \times 2 \\ & \frac{2}{5} + \frac{5}{2} - 1 = \frac{19}{10} \end{aligned}$$

Sol 4

$$\begin{aligned} & (320 + 343 + 530 + 915) \div \\ & (20 + 22 - n + 18) = 43 \\ & 2107 \div (60 - n) = 43 \\ & 2107 = 43 \times (60 - n) \\ & 2107 = 43 \times 60 - 43n \\ & 43n = 2580 - 2107 \\ & 43n = 473 \\ & n = 11 \end{aligned}$$

Sol 5

$$\begin{aligned} & 4 \left\{ 2 \left(\frac{3}{4} \text{ का } 24 - 1 \right) + 3 \left(7 \div n \right) - 5 \times 8 \right\} \\ & \quad \quad \quad + 1 \\ & \quad \quad \quad = (20)^2 \\ & \left\{ 2(17) + \frac{21}{n} - 39 \right\} = \frac{400}{4} \end{aligned}$$

$$34 + \frac{21}{n} - 39 = 100$$

$$\frac{21}{n} = 105$$

$$n = \frac{21}{105} = 0.2$$

Sol 6

$$\begin{aligned} & = \left[25^2 + 8 \div 2^3 - \left\{ 16 + (28 \text{ का } 7 \right. \right. \\ & \quad \quad \quad \left. \left. \div 2^2 \right) - (18^2 \div 12^2 \text{ का } \frac{1}{8}) \right\} \right] \\ & = \left[625 + 8 \div 8 - \left\{ 16 + (196 \div 4) \right. \right. \\ & \quad \quad \quad \left. \left. - (324 \div 18) \right\} \right] \\ & = \left[625 + 8 \div 8 - \left\{ 16 + 49 \right. \right. \\ & \quad \quad \quad \left. \left. - 18 \right\} \right] \\ & = \left[625 + 8 \div 8 - 47 \right] \\ & = \left[625 + 1 - 47 \right] \\ & = 579 \end{aligned}$$

Sol 7

$$\frac{42 - 12 \times 3 + 8 \div 2 + 15}{8 \times 2 - 4 + 9 \div 3}$$

प्रश्नानुसार चिन्ह बदलने पर -

$$= \frac{42 + 12 \div 3 - 8 \times 2 - 15}{8 \div 2 + 4 - 9 \times 3}$$

$$= \frac{42 + 4 - 16 - 15}{4 + 4 - 27}$$

$$= \frac{46 - 31}{8 - 27} = -\frac{15}{19}$$

Sol 8

$$\left[\frac{2 + 7 \times 7 \div 9 \text{ का } 9 + 6 \div 6 \times 2}{4 \div 4 \text{ का } 5 + 7 \times 7 \div 7 - 6 + 4} \right]$$

$$= \frac{2 + 7 \times 7 \div 81 + 1 \times 2}{4 \div 20 + 7 \times 1 - 2}$$

$$= \frac{\frac{2 + 7 \times \frac{7}{81} + 2}{\frac{4}{20} + 5}}$$

$$= \frac{4 + \frac{49}{81}}{\frac{1}{5} + 5}$$

$$= \frac{\frac{324 + 49}{81}}{\frac{1 + 25}{5}} = \frac{\frac{373}{81}}{\frac{26}{5}}$$

$$= \frac{373}{81} \times \frac{5}{26} = \frac{1865}{2106}$$

Sol 9

$$\frac{132 \div 12 \times n - 3 \times 3}{5^2 - 6 \times 4 + n^2} = 1$$

$$11n - 9 = 1 + n^2$$

$$n^2 - 11n + 10 = 0$$

$$n^2 - 10n - n + 10 = 0$$

$$n(n-10) - 1(n-10) = 0$$

$$(n-1)(n-10) = 0$$

$$\therefore n = 1 \quad (\because n < 10)$$

Sol 10

$$\left(\frac{2}{5} \text{ का } 6\frac{1}{4} \div \frac{3}{7} \right) \text{ का } 1\frac{2}{7} \div 11\frac{1}{4}$$

$$= \left(\frac{2}{5} \times \frac{25}{4} \times \frac{7}{3} \right) \times \frac{9}{7} \times \frac{4}{45}$$

$$= \frac{2}{3}$$

$$n = \left(\frac{2}{3} \right)^2 = \frac{4}{9}$$

$$\therefore 81n = 81 \times \frac{4}{9} = 36 \text{ Ans}$$

SIMPLIFICATION

Q) एक छात्र को $(2\frac{1}{3} + 2\frac{1}{2} - \frac{1}{6}) \div 2\frac{1}{3} \times 5\frac{2}{3} \div 1\frac{2}{3}$ का $4\frac{1}{4}$
 $3\frac{1}{5} \div 4\frac{1}{2}$ का $5\frac{1}{3} + 5\frac{1}{3} \times \frac{3}{4} \div 2\frac{2}{3}$ का मान ज्ञात करने
 के लिए कहा गया था उसका उत्तर $\frac{6}{7}$ था। सही उत्तर और उसके उत्तर
 में क्या अंतर है?

$$N) \left(\frac{7}{3} + \frac{5}{2} - \frac{1}{6} \right) \div \frac{7}{3} \times \frac{17}{3} \div \frac{5}{3} \text{ का } \frac{17}{4}$$

$$\left(\frac{14+15-1}{6} \right) \times \frac{3}{7} \times \frac{17}{3} \div \frac{85}{12}$$

$$\frac{4 \times 28}{6} \times \frac{3}{7} \times \frac{17}{3} \times \frac{12}{85} \times \frac{2}{5}$$

$$\left(\frac{8}{5} \right)$$

$$D) \frac{16}{5} \div \frac{9}{2} \text{ का } \frac{16}{5} + \frac{16}{3} \times \frac{3}{4} \div \frac{8}{3}$$

$$\frac{16}{5} \div \frac{24}{1} + \frac{16}{3} \times \frac{3}{4} \times \frac{3}{8}$$

$$\frac{2 \times 16}{5} \times \frac{1}{24} + \frac{3}{2}$$

$$\frac{2}{15} + \frac{3}{2} = \left(\frac{49}{30} \right)$$

$$\frac{N}{D} = \frac{\frac{8}{5}}{\frac{49}{30}} = \frac{240}{245} \left(\frac{48}{49} \right)$$

$$\frac{48}{49} - \frac{6}{7} \times \frac{1}{7}$$

$$\frac{48}{49} - \frac{42}{49}$$

$$\text{Diff} = \frac{6}{49}$$

TYPE-III

Q) The value of $99 \frac{95}{99} \times 99 - 95$ is
 $99 \frac{95}{99} \times 99 - 95$ का मान है:

$$\frac{9801 + 95}{99} \times 99 - 95$$

$$9801 + 95 - 95$$

$$= 9801$$

Trick

$$\boxed{99 \frac{95}{99} \times 99} - 95$$

$$\begin{array}{r} 9900 \\ - 95 \\ \hline 9896 - 95 \\ 9801 \end{array}$$

Q) Simplify : सरलीकरण

$$999 \frac{998}{999} \times 999 + 999$$

$$\begin{array}{r} 999000 \\ - 1 \\ \hline 998999 + 999 \\ 999998 \end{array}$$

Q) $9999 \frac{9997}{9999} \times 99$

$$\begin{array}{r} 999900 \\ - 2 \\ \hline 999898 \end{array}$$

• $8+8+8 = 24$
 $8 \times 3 = 24$

• $70+70 = 140$
 $70 \times 2 = 140$

• $2\frac{5}{7} = 2 + \frac{5}{7}$

• $1+2+3+4+-----+n$
 $= \frac{n(n+1)}{2}$

Q) Find the value of $999\frac{1}{7} + 999\frac{2}{7} + 999\frac{3}{7} + 999\frac{4}{7} + 999\frac{5}{7} + 999\frac{6}{7}$
 का मान क्या है?

$$999 + \frac{1}{7} + 999 + \frac{2}{7} + 999 + \frac{3}{7} + 999 + \frac{4}{7} + 999 + \frac{5}{7} + 999 + \frac{6}{7}$$

$$999 \times 6 + \frac{1+2+3+4+5+6}{7}$$

$$5994 + \frac{21}{7}$$

$$5997$$

Q) Find the value of $777\frac{1}{5} + 777\frac{2}{5} + 777\frac{3}{5} + 777\frac{4}{5}$

$777\frac{1}{5} + 777\frac{2}{5} + 777\frac{3}{5} + 777\frac{4}{5}$ का मान ज्ञात करें।

$$777 \times 4 + \frac{1+2+3+4}{5}$$

$$3108 + \frac{10}{5}$$

$$3110$$

TYPE-IV

Q) $1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{3}{5}}}}$

$$\begin{array}{ccccccc} 3 & 5 & 8 & 13 & 21 & 34 \\ \hline & & & 34 & & \\ & & & 21 & & \end{array}$$

Q) $1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{2}{3}}}}}$

$$\begin{array}{cccccccc} 2 & 3 & 5 & 8 & 13 & 21 & 34 & 55 \\ \hline & + & + & + & + & + & + & \\ & & & & 55 & & & \\ & & & & 34 & & & \end{array}$$

Q) Find the value of $4 - \frac{5}{1 + \frac{1}{3 + \frac{1}{2 + \frac{1}{4}}}}$

$4 - \frac{5}{1 + \frac{1}{3 + \frac{1}{2 + \frac{1}{4}}}}$ का मान ज्ञात कीजिए।

$$\begin{aligned}
 & 4 - \frac{5}{1 + \frac{1}{3 + \frac{1}{2 + \frac{1}{4}}}} \\
 & \quad \left(2 + \frac{1}{4} = \frac{9}{4} \right) \\
 & \quad 3 + \frac{4}{9} = \frac{31}{9} \\
 & \quad 1 + \frac{9}{31} = \frac{40}{31} \\
 & 4 - \frac{155}{40} = \frac{160 - 155}{40} = \frac{5}{40} = \frac{1}{8}
 \end{aligned}$$

Q) Simplify / सरल बनाएं

$$\begin{aligned}
 & \frac{19}{43} + \frac{1}{2 + \frac{1}{3 + \frac{1}{1 + \frac{1}{4}}}} \\
 & \quad \left(1 + \frac{1}{4} = \frac{5}{4} \right) \\
 & \quad 3 + \frac{4}{5} = \frac{19}{5} \\
 & \quad 2 + \frac{5}{19} = \frac{43}{19} \\
 & \frac{19}{43} + \frac{19}{43} = \frac{38}{43}
 \end{aligned}$$

Q) Find the value of x in the following equation.

निम्न समीकरण में x का मान ज्ञात कीजिए

$$\begin{aligned}
 & \left[1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{5}}} \right] \div \frac{6}{11} = \frac{x}{2} \\
 & \quad \left(1 + \frac{1}{5} = \frac{6}{5} \right) \\
 & \quad 1 + \frac{5}{6} = \frac{11}{6} \\
 & \quad 1 + \frac{6}{11} = \frac{17}{11}
 \end{aligned}$$

$$\frac{17}{11} \div \frac{17}{11} = \frac{x}{2}$$

$$1 = \frac{x}{2}$$

$$x = 2$$

Q) Simplify the following
निम्नलिखित को सरल कीजिए

$$240 \div \frac{5}{1 \div \frac{4}{1 \div \frac{5}{1 \div \frac{1}{3}}}}$$

$1 \div 15 = \frac{1}{15}$

$1 \div 60 = \frac{1}{60}$

$$240 \div 300 = \frac{240}{300} = \frac{4}{5}$$

Q) $\frac{1}{2a + \frac{1}{b + \frac{1}{4c}}} = \frac{9}{26}$ find $a + b + c = ?$

$$\frac{1}{\frac{26}{9}}$$

$$\frac{1}{2 + \frac{8}{9}}$$

$$\frac{1}{2 + \frac{1}{\frac{9}{8}}} = \frac{1}{2 + \frac{1}{1 + \frac{1}{8}}}$$

On comparing

$$2a = 2$$

$$a = 1$$

$$b = 1$$

$$4c = 8$$

$$c = 2$$

$$a + b + c$$

$$1 + 1 + 2 = 4$$

Q) If $\frac{1}{x + \frac{1}{y + \frac{2}{z + \frac{1}{4}}}} = \frac{29}{79}$, where x, y and z are natural numbers then

the value $(2x+3y-z)$ is:

यदि $\frac{1}{x + \frac{1}{y + \frac{2}{z + \frac{1}{4}}}} = \frac{29}{79}$, जहाँ x, y और z प्राकृतिक संख्याएँ हैं, तो $(2x+3y-z)$

का मान है:

$$\frac{1}{\frac{79}{29}} = \frac{1}{2 + \frac{21}{29}}$$

$$\boxed{x=2}$$

$$\frac{1}{y + \frac{2}{z + \frac{1}{4}}} = \frac{1}{\frac{29}{21}} = \frac{1}{1 + \frac{8}{21}}$$

$$\boxed{y=1}$$

$$\frac{2}{z + \frac{1}{4}} = \frac{8}{21}$$

$$21 = 4z + 1$$

$$\cancel{1}z = \cancel{20}$$

$$\boxed{z=5}$$

$$\boxed{z=5}$$

$$(2x+3y-z)$$

$$2 \times 2 + 3 \times 1 - 5$$

$$4 + 3 - 5$$

$$7 - 5$$

$$2$$

TYPE-V

Q) Find the value of the following
निम्नलिखित का मान ज्ञात कीजिए।

$$\frac{1}{5 \times 8} + \frac{1}{8 \times 11} + \frac{1}{11 \times 14} + \frac{1}{14 \times 17}$$

$$\frac{1}{5 \times 8} = \frac{1}{3} \times \left[\frac{1}{5} - \frac{1}{8} \right]$$

$$\frac{1}{8 \times 11} = \frac{1}{3} \left[\frac{1}{8} - \frac{1}{11} \right]$$

$$\frac{1}{11 \times 14} = \frac{1}{3} \left[\frac{1}{11} - \frac{1}{14} \right]$$

$$\frac{1}{14 \times 17} = \frac{1}{3} \left[\frac{1}{14} - \frac{1}{17} \right]$$

$$\frac{1}{3} \left[\frac{1}{5} - \frac{1}{8} + \frac{1}{8} - \frac{1}{11} + \frac{1}{11} - \frac{1}{14} + \frac{1}{14} - \frac{1}{17} \right]$$

$$\frac{1}{3} \left[\frac{1}{5} - \frac{1}{17} \right]$$

$$\frac{1}{3} \left[\frac{12}{85} \right]$$

$$\frac{4}{85}$$

Formula

$$\frac{1}{\text{diff}} \times \left[\frac{1}{\text{First term}} - \frac{1}{\text{last term}} \right]$$

$$\frac{1}{5 \times 8} + \frac{1}{8 \times 11} + \frac{1}{11 \times 14} + \frac{1}{14 \times 17}$$

$$\rightarrow \frac{1}{3} \left[\frac{1}{5} - \frac{1}{17} \right]$$

$$\frac{4}{85}$$

Q) What is the value of

$$\frac{1}{3 \times 7} + \frac{1}{7 \times 11} + \frac{1}{11 \times 15} + \dots + \frac{1}{899 \times 903}$$

$$\frac{1}{3 \times 7} + \frac{1}{7 \times 11} + \frac{1}{11 \times 15} + \dots + \frac{1}{899 \times 903} \text{ का मान क्या है ?}$$

$$\frac{1}{\text{diff}} \left[\frac{1}{\text{Ist}} - \frac{1}{\text{last}} \right]$$

$$\frac{1}{4} \left[\frac{1}{3} - \frac{1}{903} \right]$$

$$\frac{1}{4} \left[\frac{100^{25}}{2709} \right] = \frac{25}{301}$$

Q) Which of the following statements is / are correct
निम्नलिखित में से कौन सा / से कथन सत्य है / हैं ?

I. $\frac{1}{1 \times 3} + \frac{1}{3 \times 5} + \frac{1}{5 \times 7} + \dots + \frac{1}{11 \times 13} = \frac{12}{13}$

II. $\frac{1}{1 \times 2} + \frac{1}{2 \times 3} + \frac{1}{3 \times 4} + \dots + \frac{1}{12 \times 13} = \frac{12}{13}$

(I) $\frac{1}{2} \left[\frac{1}{1} - \frac{1}{13} \right]$

$$\frac{1}{2} \left[\frac{12}{13} \right] = \frac{6}{13}$$

(II) $\left[\frac{1}{1} - \frac{1}{13} \right]$

$$\frac{12}{13}$$

केवल II

1. Simplify: $999 \frac{995}{999} \times 999$

$999 \frac{995}{999} \times 999$ को हल करो।

- (a) 998296 (b) 997996
(c) 998995 (d) 998996

2. Simplify: $\frac{1}{7} + \left(999 \frac{692}{693}\right) \times 99$

$\frac{1}{7} + \left(999 \frac{692}{693}\right) \times 99$ को हल करो।

- (a) 94009 (b) 99000
(c) 99004 (d) 99006

3. Calculate : $\frac{1}{5} + \left(999 \frac{494}{495} \times 99\right)$

हल करो : $\frac{1}{5} + \left(999 \frac{494}{495} \times 99\right)$

- (a) 90090 (b) 99004
(c) 99000 (d) 99099

4. Find the value of:

$$1\frac{1}{2} + 11\frac{1}{2} + 111\frac{1}{2} + 1111\frac{1}{2}$$

- (a) 1136 (b) 1036
(c) 1336 (d) 1236

5. Find the value of:

$$129\frac{1}{8} + 129\frac{3}{8} + 129\frac{5}{8} + 129\frac{7}{8}$$

- a. 516
b. 517
c. 515
d. 518

6. Find the value of:

$$412\frac{2}{11} + 412\frac{3}{11} + 412\frac{5}{11} + 412\frac{6}{11} + 412\frac{8}{11} + 412\frac{9}{11}$$

- a. 2472
b. 2470
c. 2468
d. 2475

7. Find the value of $1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{5}}}}$

$1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{5}}}}$ का मान ज्ञात कीजिए।

- (a) $\frac{15}{9}$ (b) $\frac{13}{7}$
(c) $\frac{16}{10}$ (d) $\frac{17}{11}$

8. Find the value of $1 - \frac{1}{1 - \frac{1}{1 - \frac{1}{1 - \frac{1}{6}}}}$

$1 - \frac{1}{1 - \frac{1}{1 - \frac{1}{1 - \frac{1}{6}}}}$ का मान ज्ञात कीजिए।

(a) 3

(b) 4

(c) 5

(d) 6

9. If $2 = x + \frac{1}{1 + \frac{1}{5 + \frac{1}{2}}}$ then find the value of x.

यदि $2 = x + \frac{1}{1 + \frac{1}{5 + \frac{1}{2}}}$ है, तो x का मान ज्ञात कीजिए।

(a) $\frac{14}{13}$

(b) 1

(c) $\frac{13}{15}$

(d) $\frac{15}{13}$

10. $\frac{1}{1 \times 2} + \frac{1}{2 \times 3} + \frac{1}{3 \times 4} + \frac{1}{4 \times 5} + \frac{1}{5 \times 6} + \dots + \frac{1}{9 \times 10}$ Find the value of /का मान ज्ञात कीजिए।

(a) 1/10

(b) 5/11

(c) 9/10

(d) 2/5

11. If $x = \frac{1}{12.13} + \frac{1}{13.14} + \frac{1}{14.15} \dots + \frac{1}{23.24}$, $y = \frac{1}{36.37} + \frac{1}{37.38} + \frac{1}{38.39} + \dots + \frac{1}{71.72}$ then $\frac{x}{y}$ is equal to -

यदि $x = \frac{1}{12.13} + \frac{1}{13.14} + \frac{1}{14.15} \dots + \frac{1}{23.24}$, $y = \frac{1}{36.37} + \frac{1}{37.38} + \frac{1}{38.39} + \dots + \frac{1}{71.72}$ हो, तो $\frac{x}{y}$ किसके समान होगा?

(a) $\frac{1}{3}$

(b) $\frac{1}{24}$

(c) $\frac{1}{72}$

(d) 3

ANSWER SHEET

1	2	3	4	5	6	7	8	9	10	11
D	B	C	D	D	D	D	D	D	C	D

Worksheet solution

Sol 1

$$999 \frac{995}{999} \times 999$$
$$= \frac{998001 + 995}{999} \times 999$$

$$= 998996 \text{ Ans}$$

Sol 2

$$\frac{1}{7} + \left(999 \frac{692}{693} \right) \times 99$$
$$= \frac{1}{7} + \frac{692307 + 692}{693} \times 99$$

$$= \frac{1}{7} + \frac{692999}{7}$$

$$= \frac{693000}{7}$$

$$= 99000 \text{ Ans}$$

Sol 3

$$\frac{1}{5} + \left(999 \frac{494}{495} \times 99 \right)$$
$$= \frac{1}{5} + \frac{494505 + 494}{495} \times 99$$

$$= \frac{1}{5} + \frac{494999}{5}$$

$$= \frac{495000}{5} = 99000 \text{ Ans}$$

Sol 4

$$1\frac{1}{2} + 11\frac{1}{2} + 111\frac{1}{2} + 1111\frac{1}{2}$$
$$= 1 + 11 + 111 + 1111 + \frac{1+1+1+1}{2}$$
$$= 1234 + 2$$
$$= 1236$$

Sol 5

$$129\frac{1}{8} + 129\frac{3}{8} + 129\frac{5}{8} + 129\frac{7}{8}$$
$$= 129 \times 4 + \frac{1+3+5+7}{8}$$
$$= 516 + 2$$
$$= 518$$

Sol 6

$$412\frac{2}{11} + 412\frac{3}{11} + 412\frac{5}{11} + 412\frac{6}{11} +$$
$$412\frac{8}{11} + 412\frac{9}{11}$$
$$= 412 \times 6 + \frac{2+3+5+6+8+9}{11}$$

$$= 2472 + 3$$

$$= 2475 \text{ Ans}$$

Sol 7

$$1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{5}}}$$

$$= 1 + \frac{1}{1 + \frac{5}{6}}$$

$$= 1 + \frac{6}{11} = \frac{17}{11} \underline{\text{Ans}}$$

Sol 8

$$1 - \frac{1}{1 - \frac{1}{1 - \frac{1}{6}}}$$

$$= 1 - \frac{1}{1 - \frac{6}{5}}$$

$$= 1 - \frac{5}{-1}$$

$$= -\frac{6}{-1} = 6 \underline{\text{Ans}}$$

Sol 9

$$2 = n + \frac{1}{1 + \frac{1}{5 + \frac{1}{2}}}$$

$$2 = n + \frac{1}{1 + \frac{2}{11}}$$

$$2 = n + \frac{11}{13}$$

$$26 = 13n + 11$$

$$13n = 15$$

$$n = \frac{15}{13} \underline{\text{Ans}}$$

Sol 10

$$\frac{1}{1 \times 2} + \frac{1}{2 \times 3} + \frac{1}{3 \times 4} + \frac{1}{4 \times 5} + \dots + \frac{1}{9 \times 10}$$

$$= \left[\frac{1}{1} - \frac{1}{2} \right] + \left[\frac{1}{2} - \frac{1}{3} \right] + \left[\frac{1}{3} - \frac{1}{4} \right] + \dots + \left[\frac{1}{9} - \frac{1}{10} \right]$$

$$= \left[\frac{1}{1} - \frac{1}{10} \right] = \left[\frac{10-1}{10} \right]$$

$$= \frac{9}{10} \underline{\text{Ans}}$$

Sol 11

$$n = \frac{1}{12 \times 13} + \frac{1}{13 \times 14} + \dots + \frac{1}{23 \times 24}$$

$$= \frac{1}{12} - \frac{1}{13} + \frac{1}{13} - \frac{1}{14} + \dots + \frac{1}{23} - \frac{1}{24}$$

$$= \frac{1}{12} - \frac{1}{24} = \frac{2-1}{24} = \frac{1}{24}$$

$$y = \frac{1}{36 \times 37} + \frac{1}{37 \times 38} + \dots + \frac{1}{71 \times 72}$$

$$= \frac{1}{36} - \frac{1}{37} + \frac{1}{37} - \frac{1}{38} + \dots + \frac{1}{71} - \frac{1}{72}$$

$$= \frac{1}{36} - \frac{1}{72} = \frac{2-1}{72} = \frac{1}{72}$$

$$\therefore \frac{n}{y} = \frac{\frac{1}{24}}{\frac{1}{72}} = \frac{72}{24} = 3 \underline{\text{Ans}}$$