

e1

coaching center

1. Simplify:

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

a) $\frac{11}{17}$

b) $1\frac{5}{7}$

c) $1\frac{6}{17}$

~~d) $1\frac{11}{17}$~~

$$1 + \frac{1 \times 11}{17}$$

$$1 + \frac{2 \times 3}{11}$$

$$2 + \frac{3 \times 5}{9 \times 3}$$

$$2 + \frac{3 \times 5}{9 \times 3}$$

$$1 + \frac{2 \times 3}{11}$$

$$1 + \frac{1 \times 11}{17}$$

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2. If $x = 1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{2}}}}$ then the value of $2x + \frac{7}{4}$ is

अगर $x = 1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{2}}}}$ है तो $2x + \frac{7}{4}$ का मान:

a) 3

b) 4

c) 5

d) 6

$$\frac{13}{8} = 1 + \frac{5}{8}$$

$$1 + \frac{1}{5 \times 3}$$

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

$$2 \times \frac{13}{8} + \frac{7}{4} = \frac{26}{4} + \frac{7}{4} = \frac{33}{4}$$

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$$1 + \frac{1}{7} - 2 - \frac{1}{4}$$

3. $\frac{4\frac{1}{7} - 2\frac{1}{4}}{3\frac{1}{2} + 1\frac{1}{7}} \div \frac{1}{2 + \frac{1}{2 + \frac{1}{5 - \frac{1}{5}}}}$ is equal to

a) 1

b) 4

c) 3

d) 2

$$\frac{2 - \frac{3}{28}}{4 + \frac{9}{14}} = \frac{\frac{53}{28}}{\frac{65}{14}}$$

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

$$\frac{1}{2 + \frac{24}{53}} = \frac{53}{130}$$

$$\frac{\frac{53 \times 14}{28 \times 65} \times \frac{130}{53}}{1} = 1$$

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4. If $\frac{61}{19} = 3 + \frac{1}{x + \frac{1}{y + \frac{1}{z}}}$ where x, y and z are natural numbers, then z is equal to

यदि $\frac{61}{19} = 3 + \frac{1}{x + \frac{1}{y + \frac{1}{z}}}$ है, जहाँ x, y और z प्राकृत संख्याएँ हैं, तो z बराबर है :

$$\left(3 + \frac{4}{19}\right)$$

a) 1



$$3 + \frac{1}{4 + \frac{1}{1 + \frac{1}{3}}}$$

$$\frac{19}{4} = 4 + \frac{3}{4}$$

$$\frac{5}{3} = \frac{1}{\frac{1}{3}}$$

b) 2

c) 3

d) 4

$$\frac{3}{4} = \frac{1}{\frac{4}{3}}$$

$$\frac{3}{4} = \frac{1}{\frac{48}{3}}$$

$$\frac{3}{4} = \frac{3}{\frac{3 \times 4}{3}}$$

$$\frac{3}{4} = \frac{5}{\frac{20}{3}}$$

$$2 \frac{11}{13}$$

$$\frac{13}{11} = 1 \frac{2}{11}$$

$$\frac{13}{2} = 6 \frac{1}{2}$$

$$2 + \frac{1}{1 + \frac{1}{6 + \frac{1}{2}}}$$

5. If $\frac{37}{13} = 2 + \frac{1}{x + \frac{1}{y + \frac{1}{z}}}$ where x, y, z are natural numbers, then what is z equal to?

यदि $\frac{37}{13} = 2 + \frac{1}{x + \frac{1}{y + \frac{1}{z}}}$ है, जहाँ x, y, z प्राकृत संख्याएँ हैं, तो z किसके बराबर है ?

a) 1

~~b) 2~~

c) 3

d) Cannot be determined

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$$3\frac{3}{11}$$

$$\frac{11}{3} = 3\frac{2}{3}$$

$$\frac{3}{2} = 1\frac{1}{2}$$

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

(Handwritten annotations: 'x' points to the denominator 3, 'y' points to the denominator 1, and 'z' points to the denominator 2.)

6. If $\frac{36}{11} = 3 + \frac{1}{x + \frac{1}{y + \frac{1}{z}}}$, where x , y and z are

natural numbers, then what is $(x + y + z)$ equal to:

यदि $\frac{36}{11} = 3 + \frac{1}{x + \frac{1}{y + \frac{1}{z}}}$ है, जहाँ x , y और z

प्राकृतिक संख्याएँ हैं, तो $(x + y + z)$ का मान क्या होगा ?

- a) 6 b) 7
c) 8 d) 9

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$$\frac{23}{16} = 1\frac{7}{16}$$

$$\frac{16}{7} = 2\frac{2}{7}$$

$$\frac{7}{2} = 3\frac{1}{2}$$

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

a → $1 + \frac{1}{\dots}$
b → $2 + \frac{1}{\dots}$
c → $3 + \frac{1}{2}$

7. If a , b , and c are positive integers such that $\frac{1}{a + \frac{1}{b + \frac{1}{c + \frac{1}{2}}}} = \frac{16}{23}$, then what is

the mean of a , b and c ?

यदि a , b , और c धनात्मक पूर्णांक ऐसे हैं कि $\frac{1}{a + \frac{1}{b + \frac{1}{c + \frac{1}{2}}}} = \frac{16}{23}$, तो a , b और c का

माध्य क्या होगा ?

- a) 1
- b) 2 ✓
- c) 1.33
- d) 2.33

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8. What is the value of $\sqrt{121} + \sqrt{12321} + \sqrt{1234321} + \sqrt{123454321}$?

$\sqrt{121} + \sqrt{12321} + \sqrt{1234321} + \sqrt{123454321}$ का मान क्या है ?

- a) 12345 b) 123456 ~~c) 12344~~ d) 123454

$$\begin{array}{c} | \\ || \\ ||| \\ |||| \\ \hline |2344 \end{array}$$

$$11^2 = 121$$

$$111^2 = 12321$$

$$1111^2 = 1234321$$

$$11111^2 = 123454321$$

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9. Which of the following statement(s) is/are TRUE?

निम्नलिखित में से कौन सा/से कथन सत्य है/हैं?

I. $\sqrt{121} + \sqrt{12321} + \sqrt{1234321} = 1233$

II. $\sqrt{0.64} + \sqrt{64} + \sqrt{36} + \sqrt{0.36} > 15$

- a) Only I b) Only II c) Neither I nor II d) Both I and II

$$\begin{array}{r} 11 \\ 111 \\ 1111 \\ \hline 1233 \end{array}$$

$$\begin{array}{r} .8 \\ .6 \\ \hline 1.4 \end{array}$$

14

15.4

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10. Which of the following statement(s) is/are TRUE?

निम्नलिखित में से कौन सा/से कथन सत्य है/हैं?

$$\begin{array}{r} 123.21 \\ .49 \\ \hline .0049 \\ \hline 123.7049 \end{array}$$

~~X~~ $(0.7)^2 + (0.07)^2 + (11.1)^2 > 123.8$

~~II~~ $(1.12)^2 + (10.3)^2 + (1.05)^2 > 108.3$

a) Only I

~~b) Only II~~

c) Both I and II

d) Neither I nor II

$$\begin{array}{r} 1.1025 \\ 1.2544 \\ \hline 106.09 \\ \hline 108.4469 \end{array}$$

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11. Which of the following statement(s) is/are TRUE?

निम्नलिखित में से कौन सा/से कथन सत्य है/हैं?

I. $\sqrt{(64)} + \sqrt{(0.0064)} + \sqrt{(0.81)} + \sqrt{(0.0081)} = 9.07$

II. $\sqrt{(0.010201)} + \sqrt{(98.01)} + \sqrt{(0.25)} = 11.51$

~~a) Only I~~

b) Only II

c) Both I and II

d) Neither I nor II

$$\begin{array}{r} .09 \\ .08 \\ 8.9 \\ 8. \\ \hline 9.07 \end{array}$$

$$\begin{array}{r} .101 \\ 9.9 \\ .5 \\ \hline 10.501 \end{array}$$

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12. Assume that $\sqrt{13} = 3.605$ (approximately)

$\sqrt{130} = 11.40$ (approximately)

Find the value of: $\sqrt{1.3} + \sqrt{1300} + \sqrt{0.013}$

मान लो की $\sqrt{13} = 3.605$ (लगभग)

$\sqrt{130} = 11.40$ (लगभग)

मान पता करें: $\sqrt{1.3} + \sqrt{1300} + \sqrt{0.013}$

a) 36.164 b) 36.304 ~~c) 37.304~~ d) 37.164

$$\frac{\sqrt{130}}{\sqrt{100}}$$
$$\sqrt{13} \times \sqrt{100}$$

$$\frac{\sqrt{130}}{10}$$

$$\sqrt{\frac{130}{100}} + \sqrt{13 \times 100} + \sqrt{\frac{130}{10000}}$$

$$\begin{array}{r} 1.140 \\ 36.050 \\ \cdot 1140 \\ \hline 37.304 \end{array}$$

$$5.172 = \frac{51.72}{10}$$

$$51.72 \times 10 = 517.2$$

$$\frac{\sqrt{130}}{100}$$

13. $\sqrt{\frac{16^2+26^2+36^2}{8^2+13^2+18^2}}$ is:

a) 2^2

~~b) 2~~

c) $\sqrt{2}$

d) None of these

$\sqrt{\frac{2^2 (8^2+13^2+18^2)}{8^2+13^2+18^2}} = 2$

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14. $\sqrt{\frac{(0.1)^2+(0.01)^2+(0.009)^2}{(0.01)^2+(0.001)^2+(0.0009)^2}}$ is:

a) 10^2

~~b) 10~~

c) 0.1

d) 0.01

$\sqrt{\frac{10^2 \times ()}{()}} = 10$

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5. The value of $\sqrt{\frac{(6.1)^2+(61.1)^2+(611.1)^2}{(0.61)^2+(6.11)^2+(61.11)^2}}$ is

a) 0.1

b) 1.1

~~c) 10~~

d) 100

$$\sqrt{10^2 \times \frac{\boxed{}}{\boxed{}}} = 10$$

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16. What is the value of $\frac{1}{0.2} + \frac{1}{0.02} + \frac{1}{0.002} + \dots$ upto 9 terms?

$\frac{1}{0.2} + \frac{1}{0.02} + \frac{1}{0.002} + \dots$ 9 पदों तक का मान क्या है?

a) 222222222

b) 111111111

~~c) 555555555~~

d) 525252525



$$\frac{10}{2} + \frac{100}{2} + \frac{1000}{2} + \dots + \frac{10000000000}{2}$$

$$= 5 + 50 + 500$$

$$\begin{array}{r} 500 \\ 50 \\ \hline 550 \end{array}$$

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17. If $A = \left(\frac{1}{0.4}\right) + \left(\frac{1}{0.04}\right) + \left(\frac{1}{0.004}\right) + \dots$ upto 8 terms, then what is the value of A?

यदि $A = \left(\frac{1}{0.4}\right) + \left(\frac{1}{0.04}\right) + \left(\frac{1}{0.004}\right) + \dots$ 8 पदों तक है, तो A का मान क्या है?

a) 27272727.5

b) 25252525.5

c) 27777777.5

d) 25555555.5

$$A = \frac{10}{4} + \frac{100}{4} + \frac{1000}{4} + \dots$$

$$= 2.5 + 25 + 250 + \dots$$

$$\begin{array}{r} 250 \\ 27.5 \\ \hline 277.5 \end{array} \leftarrow$$

$$\begin{array}{r} 2500 \\ 27.5 \\ \hline 2777.5 \end{array} \leftarrow$$

18. What is the sum of first 40 terms of $1 + 3 + 4 + 5 + 7 + 7 +$

$10 + 9 + \dots$?
 $1 + 3 + 4 + 5 + 7 + 7 + 10 + 9 + \dots$ के प्रथम 40 पदों का योग क्या है?

a) 1010

b) 1115

~~c) 1030~~

d) 1031

$4 + 9 + 14 + 19 + \dots + 99$

$\frac{40}{2} = 20 \text{ terms}$

$= \frac{4+99}{2} \times 20 = 1030$

$19 \times 5 + 4 = 99$

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19. If $A = 1 - 10 + 3 - 12 + 5 - 14 + 7 \dots$ upto 60 terms, then what is the value of A?

यदि $A = 1 - 10 + 3 - 12 + 5 - 14 + 7 \dots$ 60 शर्दों तक हैं, तो A का मान क्या है?

- a) -360 b) -310 c) -240 d) -270

→ 30 terms

$$-9 \quad -9 \quad -9$$

$$= -9 \times 30 = -270$$

$$+2-2$$

↓

0

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20. If $1 + \left(\frac{1}{2}\right) + \left(\frac{1}{3}\right) + \dots + \left(\frac{1}{20}\right) = k$, then what is the value of $\left(\frac{1}{4}\right) + \left(\frac{1}{6}\right) + \left(\frac{1}{8}\right) + \dots + \left(\frac{1}{40}\right)$?

यदि $1 + \left(\frac{1}{2}\right) + \left(\frac{1}{3}\right) + \dots + \left(\frac{1}{20}\right) = k$ है, तो $\left(\frac{1}{4}\right) + \left(\frac{1}{6}\right) + \left(\frac{1}{8}\right) + \dots + \left(\frac{1}{40}\right)$ का मान क्या है?

a) $\frac{k}{2}$

b) $2k$

~~c) $\frac{(k-1)}{2}$~~

d) $\frac{(k+1)}{2}$

$$\frac{1}{2} + \frac{1}{3} + \frac{1}{6} +$$

$$+ \frac{1}{20} = k - 1$$

$$\frac{1}{2} \left[\frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \dots + \frac{1}{20} \right]$$

$$= \frac{1}{2} \times (k-1)$$

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$$\frac{\cancel{9} + \cancel{5}}{\cancel{14} \times 5 \times 3} + \frac{\cancel{13} + \cancel{9}}{\cancel{22} \times 3 \times 13} + \frac{\cancel{17} + \cancel{13}}{10 \times 13 \times 17}$$

$$= \frac{\cancel{117} \ 9}{\cancel{5} \times \cancel{3} \times \cancel{13} \times 17}$$

21. The value of $\frac{3}{70} + \frac{1}{42} + \frac{1}{66} + \frac{3}{286} + \frac{1}{130} + \frac{1}{170}$ is:

का मान कितना होगा?

$$\frac{3}{70} + \frac{1}{42} + \frac{1}{66} + \frac{3}{286} + \frac{1}{130} + \frac{1}{170}$$

7x10
14x5

a) $\frac{7}{85}$

6x7

6x11

b) $\frac{11}{85}$

11x26

c) $\frac{9}{85}$

d) $\frac{3}{85}$

$$\begin{array}{r} 221 \\ 85 \\ 45 \\ \hline 351 \end{array}$$

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$$1 + \frac{x}{9} = \frac{169}{9}$$

$$\Rightarrow \frac{9+x}{9} = \frac{169}{9}$$

$$\Rightarrow x = 160$$

1. If $\sqrt{1 + \frac{x}{9}} = \frac{13}{3}$, then the value of x is

अगर $\sqrt{1 + \frac{x}{9}} = \frac{13}{3}$ है तो x का मान पता करें:

a) $\frac{1439}{9}$

~~b) 160~~

c) $\frac{1443}{9}$

d) 169

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2. If $\sqrt{1 - \frac{x^3}{100}} = \frac{3}{5}$, then x equals to

अगर $\sqrt{1 - \frac{x^3}{100}} = \frac{3}{5}$ है तो x का मान:

- a) 2 ↓ ~~b) 4~~ c) 16 d) $\sqrt[3]{136}$

$$1 - \frac{x^3}{100} = \frac{9}{25}$$

$$\Rightarrow \frac{100 - x^3}{\cancel{100}_4} = \frac{9}{\cancel{25}}$$

$$\Rightarrow 100 - \underbrace{x^3}_{64} = 36$$

$$\Rightarrow x = 4$$

3. What is the value of $\frac{5.6 \times 0.36 + 0.42 \times 3.2}{0.8 \times 2.1}$?

$\frac{5.6 \times 0.36 + 0.42 \times 3.2}{0.8 \times 2.1}$ का मान क्या है?

~~a) 2~~

b) 1

c) 3

d) $\frac{3}{2}$

→ $\frac{100}{1000} \times$

$\frac{\overset{7}{56} \times 36 + \overset{6}{42} \times \overset{4}{32}}{\overset{3}{8} \times 21}$

$= \frac{1}{10} \times \frac{60}{3} = 2$

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4. What is the value of $\frac{3.6 \times 1.62 + 0.48 \times 3.6}{1.8 \times 0.8 + 10.8 \times 0.3 - 2.16}$?

$\frac{3.6 \times 1.62 + 0.48 \times 3.6}{1.8 \times 0.8 + 10.8 \times 0.3 - 2.16}$ का मान क्या है?

- a) 2.4 b) 2 c) 4 ~~d) 3~~

$$\frac{100}{1000} \times \frac{\overset{18}{\cancel{36}} \times \overset{9}{\cancel{162}} + \overset{7}{\cancel{48}} \times \overset{7}{\cancel{36}}}{\underset{1}{\cancel{18}} \times \underset{4}{\cancel{8}} + \underset{6}{\cancel{108}} \times \underset{3}{\cancel{3}} - \underset{12}{\cancel{216}}}$$

$$= \frac{1}{10} \times \frac{162 + 48}{4 + 9 - 6} = \frac{1}{10} \times \frac{210}{7} = 3$$

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5. If $M = 0.1 + (0.1)^2 + (0.01)^2$ and $N = 0.3 + (0.3)^2 + (0.03)^2$, then what is the value of $M + N$?

यदि $M = 0.1 + (0.1)^2 + (0.01)^2$ and $N = 0.3 + (0.3)^2 + (0.03)^2$ हैं, तो $M + N$ का मान क्या है?

a) 0.411009

b) 0.413131

c) 0.313131

~~d) None of these~~

$$\begin{array}{r} M+N = \left. \begin{array}{l} .1 + .3 \\ .01 + .09 \\ .0001 + .0009 \end{array} \right\} = \begin{array}{r} .4 \\ .10 \\ .0010 \\ \hline .5010 \end{array} \end{array}$$

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6. What is the value of $\frac{1}{(0.1)^2} + \frac{1}{(0.01)^2} + \frac{1}{(0.5)^2} + \frac{1}{(0.05)^2}$?

$\frac{1}{(0.1)^2} + \frac{1}{(0.01)^2} + \frac{1}{(0.5)^2} + \frac{1}{(0.05)^2}$ का मान क्या है?

~~a) 10504~~ b) 10404 c) 10004 d) 11400

→ $\left(\frac{10}{1}\right)^2 + \left(\frac{100}{1}\right)^2 + \left(\frac{10}{5}\right)^2 + \left(\frac{100}{5}\right)^2$

= 100

10000
4

400

10504

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7. Which of the following statement(s) is/are TRUE?

निम्नलिखित में से कौन सा/से कथन सत्य है/हैं?

✓ I. $\left(\frac{0.03}{0.2}\right) + \left(\frac{0.003}{0.02}\right) + \left(\frac{0.0003}{0.002}\right) + \left(\frac{0.00003}{0.0002}\right) = 0.6$

✓ II. $(0.01) + (0.01)^2 + (0.001)^2 = 0.010101$

a) Only I b) Only II c) Neither I nor II ~~d) Both I and II~~

i) $\frac{3}{20} + \frac{3}{20} + \frac{3}{20} + \frac{3}{20} = \frac{4 \times 3}{20} = \frac{12}{20} = \frac{3}{5} = .6$

ii)

$$\begin{array}{r} .01 \\ .0001 \\ .000001 \\ \hline .010101 \end{array}$$

8. $1 + \frac{1}{2} + \frac{1}{4} + \frac{1}{7} + \frac{1}{14} + \frac{1}{28}$ is equal to:

~~a) 2~~

b) 2.5

c) 3

d) 3.5

$$= 1 + \frac{14+7+4+2+1}{28}$$

$$= 1 + \frac{28}{28} = 2$$

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9. The simplified value of

$$\left(1 - \frac{1}{3}\right) \left(1 - \frac{1}{4}\right) \left(1 - \frac{1}{5}\right) \dots \dots \dots \left(1 - \frac{1}{99}\right) \left(1 - \frac{1}{100}\right) \text{ is}$$

a) $\frac{2}{99}$

b) $\frac{1}{25}$

~~c) $\frac{1}{50}$~~

d) $\frac{1}{100}$

* अगर 1st fraction में
denominator cancel
हुआ है तो last fraction
में numerator cancel
होगा

$$\frac{\cancel{2}}{\cancel{3}} \times \frac{\cancel{3}}{\cancel{4}} \times \frac{\cancel{4}}{\cancel{5}} \times \dots \dots \dots \times \frac{\cancel{99}}{\cancel{100}}$$
$$= \frac{2}{100}$$

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16. The value of

$$\left(1 + \frac{1}{2}\right) \left(1 + \frac{1}{3}\right) \left(1 + \frac{1}{4}\right) \dots \dots \dots \left(1 + \frac{1}{120}\right) \text{ is}$$

a) 30

b) 40.5

~~c) 60.5~~

d) 121



$$\frac{\cancel{2}}{2} \times \frac{\cancel{4}}{\cancel{3}} \times \frac{\cancel{5}}{\cancel{4}} \times \dots \times \frac{\cancel{121}}{\cancel{120}} = \frac{121}{2}$$

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II. Which of the following statement(s) is/ are TRUE?

निम्नलिखित में से कौन सा/से कथन सत्य है/हैं?

✓ I. $\left(1 + \frac{1}{2}\right) \left(1 + \frac{1}{3}\right) \left(1 + \frac{1}{4}\right) \dots \left(1 + \frac{1}{998}\right) > 497$

✓ II. $14\frac{3}{4} + 5\frac{1}{4} - 2\frac{1}{2} > 11\frac{1}{8} + 12\frac{3}{8} - 7\frac{1}{4}$

a) Only I b) Only II c) Neither I nor II ~~d) Both I and II~~

I) $\frac{3}{2} \times \frac{4}{3} \times \frac{5}{4} \times \dots \times \frac{999}{998} = \frac{999}{2} = 499.5$

II) $14 + 5 - 2 + \frac{3}{4} + \frac{1}{4} - \frac{1}{2} = 17 + \frac{1}{2}$

$11 + 12 - 7 + \frac{1}{8} + \frac{3}{8} - \frac{1}{4} = 16 + \frac{1}{4}$

12. The value of $\left(1 + \frac{1}{x}\right) \left(1 + \frac{1}{x+1}\right) \left(1 + \frac{1}{x+2}\right) \left(1 + \frac{1}{x+3}\right)$ is

a) $1 + \frac{1}{x+4}$

b) $x + 4$

c) $\frac{1}{x}$

~~d) $\frac{x+4}{x}$~~

$\frac{\cancel{x+1}}{x} \times \frac{\cancel{x+2}}{\cancel{x+1}} \times \frac{\cancel{x+3}}{\cancel{x+2}} \times \frac{\cancel{x+4}}{\cancel{x+3}}$

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13. If $\left(1 + \frac{1}{2}\right) \left(1 + \frac{1}{4}\right) \left(1 + \frac{1}{6}\right) \left(1 + \frac{1}{8}\right) \left(1 - \frac{1}{3}\right) \left(1 - \frac{1}{5}\right) \left(1 - \frac{1}{7}\right) = 1 + \frac{1}{x}$, then the value of x ?

यदि $\left(1 + \frac{1}{2}\right) \left(1 + \frac{1}{4}\right) \left(1 + \frac{1}{6}\right) \left(1 + \frac{1}{8}\right) \left(1 - \frac{1}{3}\right) \left(1 - \frac{1}{5}\right) \left(1 - \frac{1}{7}\right) = 1 + \frac{1}{x}$ हो, तो x का मान क्या है?

a) 6

~~b) 8~~

c) 5

d) 7

$$\frac{\cancel{3}}{2} \times \frac{\cancel{5}}{4} \times \frac{\cancel{7}}{6} \times \frac{9}{8} \times \frac{\cancel{2}}{3} \times \frac{\cancel{4}}{5} \times \frac{\cancel{6}}{7} = 1 + \frac{1}{8}$$

$$\therefore x = 8$$

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14. Find the sum of:

जोड़फल पता करें:

$$\left(1 - \frac{1}{n+1}\right) + \left(1 - \frac{2}{n+1}\right) + \left(1 - \frac{3}{n+1}\right) + \dots + \left(1 - \frac{n}{n+1}\right)$$

a) n \downarrow ~~b) $\frac{1}{2}n$~~ c) $(n+1)$ d) $\frac{1}{2}(n+1)$

$$\frac{n+1-1}{n+1} + \frac{n+1-2}{n+1} + \dots + \frac{n+1-n}{n+1}$$

$$= \frac{n}{n+1} + \frac{n-1}{n+1} + \dots + \frac{1}{n+1}$$

$$= \frac{n + (n-1) + (n-2) + \dots + 3 + 2 + 1}{n+1} = \frac{n(n+1)}{2} \times \frac{1}{(n+1)}$$

coaching center

15. If $f(X) = \frac{1}{X} - \frac{1}{X+1}$, then what is the value of $f(1) + f(2) + f(3) + \dots + f(10)$?

यदि $f(X) = \frac{1}{X} - \frac{1}{X+1}$ है, तो $f(1) + f(2) + f(3) + \dots + f(10)$ का मान क्या है?

a) $\frac{9}{10}$

~~b) $\frac{10}{11}$~~

c) $\frac{11}{12}$

d) $\frac{12}{13}$

$$\begin{aligned} & \left[\frac{1}{1} - \frac{1}{2} \right] + \left[\frac{1}{2} - \frac{1}{3} \right] + \left[\frac{1}{3} - \frac{1}{4} \right] + \dots + \left[\frac{1}{10} - \frac{1}{11} \right] \\ &= 1 - \frac{1}{11} = \end{aligned}$$

coaching center

16. The value of $999 \frac{995}{999} \times 999$ is

- a) 990809 ~~b) 998996~~ c) 999824 d) 998999

$$\frac{999 \times 999 + 995}{\cancel{999}} \times \cancel{999}$$

= unit digit 6

coaching center

VBODMAS Practice

e1

coaching center

17. What is the value of $\frac{\frac{5}{6} - \frac{5}{11} \text{ of } \left[\frac{3}{7} + \frac{8}{12} \div \frac{6}{24} + \frac{5}{7} \right]}{\frac{3}{12} \times \frac{6}{5}} ?$

$\left\{ \frac{\frac{5}{6} - \frac{5}{11} \text{ of } \left[\frac{3}{7} + \frac{8}{12} \div \frac{6}{24} + \frac{5}{7} \right]}{\frac{3}{12} \times \frac{6}{5}} \right\}$ का मान ज्ञात कीजिए।

- a) $\frac{-1891}{691}$ b) $\frac{2075}{693}$ c) $\frac{-1894}{891}$ ~~d) $\frac{-2075}{693}$~~

$$\frac{\frac{5}{6} - \frac{5}{11} \times \frac{80}{21}}{\frac{3}{2} \times \frac{1}{5}}$$

Common
↓

$$= \frac{5}{3} \left(\frac{1}{2} - \frac{80}{77} \right) \times \frac{10}{3}$$

$$= \frac{50}{9} \left(\frac{77 - 160}{154} \right)$$

$$= \frac{50}{9} \times \frac{-83}{154} = \frac{-2075}{693}$$

$$\begin{aligned} & \frac{3}{7} + \frac{8}{12} \times \frac{24}{6} + \frac{5}{7} \\ &= \frac{3}{7} + \frac{8}{3} + \frac{5}{7} \\ &= \frac{8}{7} + \frac{8}{3} = \frac{80}{21} \end{aligned}$$

$$\frac{5}{11} \times \frac{25}{7} \times \frac{33}{28} + \frac{5}{12} \times \frac{2}{3} \times \frac{27}{25}$$

$$\frac{2 \cancel{6}}{11} \times \frac{\cancel{5}}{\cancel{12}} \times \frac{44}{15}$$

$$= \frac{375}{196} + \frac{3}{10} = \frac{2169}{1960} = \frac{4338}{1960} \times \frac{3}{2} = \frac{4338}{1960} \times \frac{3}{2}$$

18. What is the value of

$$\frac{\frac{5}{11} \div \frac{7}{25} \times \frac{33}{28} + \frac{5}{12} \times \frac{2}{3} \div \frac{25}{27}}{\frac{6}{11} \times \frac{5}{12} \div \frac{15}{44}} ?$$

$$\frac{\frac{5}{11} \div \frac{7}{25} \times \frac{33}{28} + \frac{5}{12} \times \frac{2}{3} \div \frac{25}{27}}{\frac{6}{11} \times \frac{5}{12} \div \frac{15}{44}}$$

का मान ज्ञात कीजिए।

a) $\frac{9670}{1866}$

b) $\frac{8408}{1955}$

c) $\frac{6507}{1960}$

d) $\frac{9567}{1860}$

$$\begin{array}{r} 3750 \\ 588 \\ \hline 4338 \end{array}$$

coaching center

$$9^2 \times 27 + 3^3 \times 7 + x = 59^2$$

$$\Rightarrow 27(81+7) + x = 3481$$

$$\Rightarrow x = 3481$$

$$\begin{array}{r} -2376 \\ \hline 1105 \end{array}$$

19. Select the number that will come in place of the question mark (?) in the following mathematical statement.

निम्न समीकरण में प्रश्न चिह्न (?) के स्थान पर कौन-सी संख्या आ सकती है?

$$(9^2 \times 27 + 3^3 \times 7 + ?)^{\frac{1}{2}} = 59$$

- a) 1087 ~~b) 1105~~ c) 1111 d) 1090

$$\begin{array}{r} 27 \\ 88 \\ \hline 216 \\ 2160 \\ \hline 2376 \end{array}$$

coaching center

$$\frac{5}{7} \times \frac{1}{12} \times \frac{1}{4} - \frac{1}{2} \times \frac{1}{8} + \frac{5}{4} \times \frac{8}{15} - \frac{2}{3}$$

Common

$$= \frac{1}{16} \left(\frac{5}{7 \times 3} - 1 \right)$$

$$= \frac{1}{16} \times \frac{-16}{21} = -\frac{1}{21}$$

$$\frac{-1 \times 2}{21 \times 5} = -\frac{2}{105}$$

Sol

20. What is the Value of $\left[\left(\frac{5}{7} \text{ of } \frac{1}{12} \times \frac{1}{4} - \frac{1}{2} \times \frac{1}{8} \right) + \frac{5}{4} \times \frac{8}{15} - \frac{2}{3} \right] \div \frac{1}{2} \div \frac{1}{4} + \frac{1}{2}$?

$$\left[\left(\frac{5}{7} \text{ of } \frac{1}{12} \times \frac{1}{4} - \frac{1}{2} \times \frac{1}{8} \right) + \frac{5}{4} \times \frac{8}{15} - \frac{2}{3} \right] \div \frac{1}{2} \div \frac{1}{4} + \frac{1}{2}$$

का मान कितना होगा?

a) $\frac{-5}{108}$

b) $\frac{-4}{103}$

c) $\frac{-4}{105}$

~~d) $\frac{-2}{105}$~~

$$\frac{1}{2} \times 4 + \frac{1}{2} = \frac{5}{2}$$

$$\frac{2}{3} \times \frac{5}{8} \times 276 - 84$$

$$= 115 - 84$$

$$= 31$$

21. The value of $\frac{2}{3}$ of $\frac{5}{8}$ of $276 - \sqrt{7056}$ is:

$\frac{2}{3}$ of $\frac{5}{8}$ of $276 - \sqrt{7056}$ का मान ज्ञात कीजिए।

a) 36

~~b) 31~~

c) 33

d) 29

80

80 + 16

84

coaching center

$$\frac{5}{11} \times \frac{3}{7} + \frac{7}{11} \times \frac{55}{21} - \frac{8}{22} \times \frac{33}{16}$$

$$= \frac{15}{77} + \frac{5}{3} - \frac{3}{4}$$

$$= \frac{180 + 1540 - 693}{77 \times 3 \times 4} = \frac{1027}{924}$$

22. What is the value of $\frac{5}{11}$ of $\frac{3}{7} + \frac{7}{11} \times \frac{55}{21} - \frac{8}{22} \div \frac{16}{33}$?

$\frac{5}{11}$ of $\frac{3}{7} + \frac{7}{11} \times \frac{55}{21} - \frac{8}{22} \div \frac{16}{33}$ का मान क्या होगा?

a) $\frac{1088}{927}$

~~b) $\frac{1027}{924}$~~

c) $\frac{1811}{956}$

d) $\frac{1029}{945}$

$$\begin{array}{r} 1720 \\ - 693 \\ \hline 1027 \end{array}$$

coaching center

23. The value of $\left(2\frac{6}{7} \text{ of } 4\frac{1}{5} \div \frac{2}{3}\right) \times 5\frac{1}{9} \div \left(\frac{3}{4} \times 2\frac{2}{3} \text{ of } \frac{1}{2} \div \frac{1}{4}\right)$ is:

$\left(2\frac{6}{7} \text{ of } 4\frac{1}{5} \div \frac{2}{3}\right) \times 5\frac{1}{9} \div \left(\frac{3}{4} \times 2\frac{2}{3} \text{ of } \frac{1}{2} \div \frac{1}{4}\right)$ का मान ज्ञात करें।

~~a) 23~~

b) 19

c) 25

d) 21

$$\frac{\cancel{20}^3}{\cancel{7}} \times \frac{\cancel{21}^3}{5} \times \frac{\cancel{3}}{2} \times \frac{\cancel{46}^{23}}{9} \times \frac{\cancel{4}}{3} \times \frac{\cancel{3}}{8} \times \frac{\cancel{2}}{1} \times \frac{1}{\cancel{4}}$$

coaching center

24. Simplify

सरलीकरण करे:

① $p - q + p$

$3p - [3p - \overline{p + q} - \{3p - (\overline{p - q - p})\}]$

~~$2p + 2q$~~

b) $p + 2q$

c) $3p + 2q$

d) $3p - q$

⑤ $3p - p + 2q$
 $= 2p + 2q$

② $\{3p - 2p + q\}$

$\{p + q\}$

④ $[2p - q - p - q]$

$= [p - 2q]$

coaching center

25. Find the value of z in $(z \times 21\% \text{ of } 210) \div (17\% \text{ of } 170) = 3050 \div z$
 $(z \times 21\% \text{ of } 210) \div (17\% \text{ of } 170) = 3050 \div z$ में z का मान ज्ञात कीजिए।

a) 18.4

~~b) 44.7~~

c) 22.1

d) 33.1

$$\frac{z \times 21 \times 210}{17 \times 170} = \frac{3050}{z}$$

$$\Rightarrow z^2 = \frac{17 \times 17 \times 3050}{21 \times 21}$$

$$\Rightarrow z = \frac{17 \times 5 \times \sqrt{122}}{21}$$

$$= \frac{85 \times 11}{21} = \frac{935}{21} = 44 \frac{11}{21}$$

26. Solve the following $[25^2 + 8 \div 2^3 - \{16 + (28 \text{ of } 7 \div 2^2) - (18^2 \div 12^2 \text{ of } \frac{1}{8})\}]$

निम्नलिखित को हल कीजिए

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

a) 626

b) 529

c) 721

~~d) 579~~

$$\left[625 + \frac{8}{8} - \left\{ 16 + \left(\frac{\cancel{28}^7 \times 7}{\cancel{4}} \right) - \left(324 \div \cancel{144}^{18} \times \frac{1}{\cancel{8}} \right) \right\} \right]$$

$$= [625 + 1 - \{16 + 49 - 18\}]$$

$$= [625 + 1 - 47] = 579$$

coaching center

27. If $9 \times 4 \text{ of } 3 \div 2 - 5 \times Q + 2 \times 3 = 10$, then find the value of Q .

यदि $9 \times 4 \text{ of } 3 \div 2 - 5 \times Q + 2 \times 3 = 10$ है, तो Q का मान ज्ञात कीजिए।

- a) ~~10~~ b) 5 c) 0.1 d) 0.2

$$9 \times 12 \times \frac{1}{2} - 5Q + 6 = 10$$

$$\Rightarrow 54 + 6 - 10 = 5Q$$

$$\Rightarrow \frac{50}{5} = Q$$

coaching center

$$\begin{aligned}
 & \frac{\cancel{9} \times \frac{\cancel{7}}{\cancel{3}} \times \frac{1}{\cancel{213}} + \frac{1}{\cancel{5}} \times \frac{\cancel{25}^5}{\cancel{7}} - 1}{\cancel{4} \frac{\cancel{24}}{\cancel{6}} + 36 \div 9} \\
 &= \frac{\cancel{1} + \frac{5}{7} - \cancel{1}}{4 + 4} \\
 &= \frac{5}{7 \times 8} = \frac{5}{56}
 \end{aligned}$$

28. What is the simplified value of the following?

$$9 \div \frac{3}{7} \text{ of } (9 + 6 \times \overline{4-2}) + \left[\frac{1}{5} \div \frac{7}{25} - \left\{ \frac{5}{8} + \frac{6}{16} \right\} \right]$$

$$24 \div \overline{16-10} + 36 \div (5 + 20 \div 4 - 1)$$

निम्नलिखित का सरलीकृत मान क्या है?

$$9 \div \frac{3}{7} \text{ of } (9 + 6 \times \overline{4-2}) + \left[\frac{1}{5} \div \frac{7}{25} - \left\{ \frac{5}{8} + \frac{6}{16} \right\} \right]$$

$$24 \div \overline{16-10} + 36 \div (5 + 20 \div 4 - 1)$$

a) $\frac{40}{7}$

~~b) $\frac{5}{56}$~~

c) $\frac{7}{40}$

d) $\frac{51}{56}$

coaching center

$$\frac{46}{5} \div \left\{ \left(\frac{81}{5} \div 12 + \frac{2}{3} - 9 - \frac{2}{3} \right) + \frac{35}{2} \times \frac{64}{21} \right\}$$

$$= \frac{46}{5} \div \left\{ \frac{81}{5} \times \frac{1}{2} + \frac{160}{3} \right\}$$

$$= \frac{46}{5} \div \left\{ \frac{81 + 800}{15} \right\}$$

$$= \frac{46}{5} \times \frac{15}{881} = \frac{138}{881}$$

29. Simplify the following expression.

$$9\frac{1}{5} \div \left\{ \left(16\frac{1}{5} \div 12\frac{2}{3} - 9\frac{2}{3} \right) + 17\frac{1}{2} \text{ of } 3\frac{1}{21} \right\}$$

निम्नलिखित व्यंजक का ज्ञात कीजिए:

$$9\frac{1}{5} \div \left\{ \left(16\frac{1}{5} \div 12\frac{2}{3} - 9\frac{2}{3} \right) + 17\frac{1}{2} \text{ of } 3\frac{1}{21} \right\}$$

a) $\frac{139}{881}$

b) $\frac{137}{881}$

c) $\frac{140}{881}$

~~d) $\frac{138}{881}$~~

coaching center

$$\frac{\cancel{27}^1}{\cancel{7}} \times \frac{\cancel{7}}{\cancel{54}_2} - \left\{ 3 - \left(\frac{11}{4} - \frac{3}{2} \right) \right\} + \frac{A}{4} = 0 \quad \text{30.}$$

$$\Rightarrow \frac{1}{2} - 3 + \frac{5}{4} = -\frac{A}{4}$$

$$\Rightarrow \frac{2-12+5}{4} = -\frac{A}{4}$$

$$\Rightarrow -\frac{5}{4} = -\frac{A}{4}$$

If $\left[3\frac{6}{7} \div \frac{54}{7} - \left\{ 3 - \left(2\frac{3}{4} - \frac{3}{2} \right) \right\} \right] + A \div 4 = 0$,
Then what is the value of A ?

यदि $\left[3\frac{6}{7} \div \frac{54}{7} - \left\{ 3 - \left(2\frac{3}{4} - \frac{3}{2} \right) \right\} \right] + A \div 4 = 0$,
तो A का मान क्या होगा?

- a) 6 ~~b) 5~~ c) 4 d) 9

coaching center

31. what is value of $12 - 8 \div 2 - \{16 \text{ of } -2 + 3 \times 5 - 4\}$?

$12 - 8 \div 2 - \{16 \text{ of } -2 + 3 \times 5 - 4\}$ का मान क्या है?

- a) 0 b) 1 ~~c) 29~~ d) 45

$$12 - 4 - \{-32 + 15 - 4\}$$

$$= 8 + 32 - 11$$

$$= 29$$

coaching center

32. What is the value of $\frac{0.6 \times 0.6 \div 0.3 + 0.2 \times 0.3 - 0.6}{0.1 \times 0.2 \div 0.4}$?

$\frac{0.6 \times 0.6 \div 0.3 + 0.2 \times 0.3 - 0.6}{0.1 \times 0.2 \div 0.4}$ का मान कितना है?
a) 15.2 b) 14.6 ~~c) 13.2~~ d) 12.5

$$\begin{aligned} & \frac{.6 \times \overset{2}{.6} \times \overset{1}{.3} + .2 \times .3 - .6}{.1 \times \overset{2}{.2} \times \overset{1}{.4}} \\ &= \frac{1.2 + .06 - .6}{\frac{1}{20}} = \frac{66 \times 20}{100 \times 1} = 13.2 \end{aligned}$$

$$\begin{array}{r} 1.26 \\ - .6 \\ \hline .66 \end{array}$$

coaching center

$$\frac{7}{8} + \frac{8}{11} \times \left[\frac{33}{16} - \frac{5}{12} + \frac{6}{11} - \frac{5}{12} + \frac{7}{22} \right]$$

$$= \frac{7}{8} + \frac{8}{11} \times \left[\frac{33}{16} - \frac{10}{12} + \frac{19}{22} \right]$$

$$= \frac{7}{8} + \frac{8}{11} \times \left[\frac{1089 - 440 + 456}{528} \right]$$

$$= \frac{7}{8} + \frac{8}{11} \times \frac{1105}{528} = \frac{2541}{2904} + \frac{4420}{2904} = \frac{6961}{2904}$$

$$= \frac{2541 + 4420}{2904} = \frac{6961}{2904}$$

33. What is the value of $\frac{7}{8} + \frac{8}{11}$ of $\left[\frac{33}{16} - \frac{5}{12} + \left(\frac{6}{11} - \frac{5}{12} + \frac{7}{22} \right) \right]$?
 $\frac{7}{8} + \frac{8}{11}$ of $\left[\frac{33}{16} - \frac{5}{12} + \left(\frac{6}{11} - \frac{5}{12} + \frac{7}{22} \right) \right]$ का मान ज्ञात कीजिए।

a) $\frac{6871}{3605}$
c) $\frac{6907}{3971}$

b) $\frac{6805}{2987}$
~~d) $\frac{6961}{2904}$~~

34. What should come in place of the question mark (?) in the following equation?

$$(?)^2 + ? + 12^3 = 13^2 + 22^2 + 2715$$

निम्नलिखित समीकरण में प्रश्न चिह्न (?) के स्थान पर क्या आना चाहिए?

$$(?)^2 + ? + 12^3 = 13^2 + 22^2 + 2715$$

- a) 38 ~~b) 40~~ c) 34 d) 50

$$\begin{array}{r} 169 \\ 484 \\ 2715 \\ \hline - 1728 \\ \hline 1640 \end{array}$$

$$x^2 + x = 1640$$

Check options' unit digit or solve quad. eqn.

b) $40^2 + 40 = 1640$

$$x(x+1) = 1640$$

diff = 1 Prod = 1640

$$\begin{array}{r} 40 \times 41 \times 10 \\ \swarrow \quad \searrow \\ 40 \quad 41 \end{array}$$

$$\cancel{3}(49 \times 19 - 41 \times 6) = \cancel{3}x^2 + \cancel{1380} \quad 35.$$

$$\Rightarrow \begin{array}{r} 931 \\ -246 \\ -460 \\ \hline 225 \end{array} = x^2$$

$$\Rightarrow 15 = x$$

35. Select the number that will come in place of the question mark (?) in the following mathematical statement.

$$49 \times 57 - 41 \times 18 = (?)^2 \times 3 + 1380$$

निम्न समीकरण में प्रश्न चिह्न के स्थान पर कौन-सी संख्या आ सकती है?

$$49 \times 57 - 41 \times 18 = (?)^2 \times 3 + 1380, (?)$$

- ~~a) 15~~ b) 21 c) 3 d) 7

$$\begin{array}{r} 76 \\ 17 \\ \hline 93 \end{array}$$

coaching center

36. Simplify $\left[7\frac{1}{2} \div \left\{1\frac{1}{4} - \frac{1}{2}\left(2\frac{1}{2} - \frac{1}{4} - \frac{1}{6}\right)\right\}\right] \div \left(\frac{1}{2} \text{ of } 8\frac{1}{3}\right)$.

$\left[7\frac{1}{2} \div \left\{1\frac{1}{4} - \frac{1}{2}\left(2\frac{1}{2} - \frac{1}{4} - \frac{1}{6}\right)\right\}\right] \div \left(\frac{1}{2} \text{ of } 8\frac{1}{3}\right)$ का मान
ज्ञात कीजिए।

a) 36 ~~b) 43.2~~ c) 23.6 d) 4.26

$$\begin{aligned} & \left[\frac{15}{2} \div \left\{ \frac{5}{4} - \frac{1}{2} \left(\frac{5}{2} - \frac{1}{4} - \frac{1}{6} \right) \right\} \right] \times \frac{2}{1} \times \frac{3}{25} \\ & \qquad \qquad \qquad \frac{29}{12} \\ & = \left[\frac{15}{2} \div \left\{ \frac{5}{4} - \frac{29}{24} \right\} \right] \times \frac{6}{25} \\ & \qquad \qquad \qquad \frac{1}{24} \\ & = \frac{3}{2} \times \frac{12}{1} \times \frac{6}{25} = \frac{216}{5} = 43.2 \end{aligned}$$

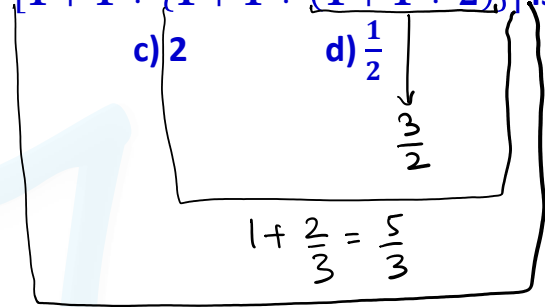
37. The value of $1 \div [1 + 1 \div \{1 + 1 \div (1 + 1 \div 2)\}]$ is

a) 1

~~b) $\frac{5}{8}$~~

c) 2

d) $\frac{1}{2}$



$$1 + \frac{3}{5} = \frac{8}{5}$$

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

coaching center