सरलीकरण | Simplification

Type-6

1. $\dfrac{1}{1+\dfrac{1}{1+\dfrac{1}{1+\dfrac{1}{1+\dfrac{1}{1+\frac{1}{4}}}}}} = ?$

(A) $\frac{23}{37}$ (B) $\frac{25}{37}$ (C) $\frac{21}{37}$ (D) $\frac{37}{23}$

2. $\dfrac{1}{1-\dfrac{1}{1-\dfrac{1}{1-\dfrac{1}{1-\frac{1}{4}}}}} = ?$

(A) $\frac{3}{4}$ (B) $\frac{1}{2}$ (C) $\frac{4}{3}$ (D) $\frac{5}{8}$

3. $\dfrac{1}{1-\dfrac{1}{1-\dfrac{1}{1-\dfrac{1}{1-\frac{2}{3}}}}} = ?$

(A) 1 (B) 3
(C) 2 (D) 5

4. $\dfrac{1}{1+\dfrac{1}{1-\dfrac{1}{1+\dfrac{1}{1-\dfrac{1}{1+\frac{1}{3}}}}}} = ?$

(A) $\frac{4}{9}$ (B) $\frac{9}{4}$ (C) $\frac{3}{2}$ (D) $\frac{2}{3}$

5. $\dfrac{1}{3-\dfrac{1}{1+\dfrac{1}{2-\frac{1}{4}}}} = ?$

(A) $\frac{26}{11}$ (B) $\frac{15}{29}$

(C) $\frac{16}{27}$ (D) $\frac{11}{26}$

6. $\left[4-\dfrac{5}{1+\dfrac{1}{3+\dfrac{1}{2+\frac{1}{4}}}}\right] = ?$

(A) $\frac{1}{7}$ (B) $\frac{1}{8}$

(C) $\frac{1}{6}$ (D) $\frac{1}{5}$

7. $\dfrac{4\frac{2}{7}-\frac{1}{2}}{3\frac{1}{2}+1\frac{1}{7}} \div \dfrac{1}{2+\dfrac{1}{2+\dfrac{1}{5-\frac{1}{5}}}} = ?$

(A) 1 (B) 2
(C) 5 (D) 8

8. If/यदि $x = 1+\dfrac{1}{1+\dfrac{1}{1+\dfrac{1}{1+\frac{1}{2}}}}$, find/ हो, तो $2x+\frac{7}{4} = ?$

(A) 3 (B) 4
(C) 5 (D) 6

9. $\frac{13}{48} = ?$

(A) $\frac{1}{3+\frac{1}{\left(1+\frac{1}{16}\right)}}$ (B) $\frac{1}{2+\frac{1}{1+\frac{1}{8}}}$

(C) $\frac{1}{3+\frac{1}{1+\frac{1}{1+\frac{1}{8}}}}$ (D) $\frac{1}{3+\frac{1}{1+\frac{1}{2+\frac{1}{4}}}}$

10. If a, b, c, d are interger (पूर्णांक), then a + b + c + d = ?

$$\frac{1}{a+\frac{1}{b+\frac{1}{c+\frac{1}{d}}}} = \frac{29}{154}$$

(A) 10 (B) 8
(C) 12 (D) 14

11. What is the simplified value of/ सरल मान ज्ञात करो:

$$\left(1-\frac{1}{4-\frac{2}{1+\frac{1}{\frac{1}{3}+2}}}\right) \times \frac{15}{16} \div \frac{2}{3} \text{ of } 2\frac{1}{4} - \frac{3+4}{3^3+4^3}$$

(A) $\frac{6}{13}$ (B) $\frac{8}{13}$ (C) $\frac{5}{13}$ (D) $\frac{4}{13}$

12. 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 of (2x + 3y – z) is :

यदि $\frac{1}{x+\frac{1}{y+\frac{2}{z+\frac{1}{4}}}} = \frac{29}{79}$ है, जहाँ x, y और z प्राकृतिक संख्याएं हैं, तो (2x + 3y – z) का मान ज्ञात कीजिए।

(A) 1 (B) 4
(C) 0 (D) 2

13. If $2 = x + \frac{1}{1+\frac{1}{5+\frac{1}{2}}}$, then the value of x is equal to :

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

14. If a, b & c are positive integer & $\frac{1}{a+\frac{1}{b+\frac{1}{c+\frac{1}{2}}}} = \frac{16}{23}$

then the average of a, b & c.

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

तब a, b और c का औसत बताओ।

(A) 1 (B) 2
(C) 1.33 (D) 2.33

15. If $\frac{1}{1+\frac{1}{1+\frac{1}{1+\frac{1}{x}}}} = \frac{5}{8}$, then what is the value of x?

यदि $\frac{1}{1+\frac{1}{1+\frac{1}{1+\frac{1}{x}}}} = \frac{5}{8}$ हो, तो x का मान क्या है?

(A) 2 (B) 3
(C) 1 (D) 4

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4. The value of $1+\cfrac{1}{1+\cfrac{2}{3+\cfrac{4}{5}}}$ is /का मान क्या है?

(A) $\frac{12}{29}$ (B) $\frac{8}{19}$

(C) $\frac{48}{29}$ (D) $\frac{2}{19}$

SOLUTIONS

1. (A) $\cfrac{1}{1+\cfrac{1}{1+\cfrac{1}{1+\cfrac{1}{1+\cfrac{1}{1+\frac{1}{4}}}}}} = \cfrac{1}{1+\cfrac{1}{1+\cfrac{1}{1+\frac{4}{5}}}}$

$= \cfrac{1}{1+\cfrac{1}{1+\cfrac{1}{1+\frac{5}{9}}}} = \cfrac{1}{1+\cfrac{1}{1+\frac{9}{14}}} = \cfrac{1}{1+\frac{14}{23}} = \frac{23}{37}$

2. (C) $\cfrac{1}{1-\cfrac{1}{1-\cfrac{1}{1-\cfrac{1}{1-\frac{1}{4}}}}} = \cfrac{1}{1-\cfrac{1}{1-\cfrac{1}{1-\frac{4}{3}}}} = \cfrac{1}{1-\frac{1}{4}} = \frac{4}{3}$

3. (B) $\cfrac{1}{1-\cfrac{1}{1-\cfrac{1}{1-\cfrac{1}{1-\frac{2}{3}}}}} = \cfrac{1}{1-\cfrac{1}{1-\cfrac{1}{1-3}}} = \cfrac{1}{1-\frac{2}{3}} = 3$

4. (A) $\cfrac{1}{1+\cfrac{1}{1-\cfrac{1}{1+\cfrac{1}{1-\cfrac{1}{1+\frac{1}{3}}}}}} = \cfrac{1}{1+\cfrac{1}{1-\cfrac{1}{1+\cfrac{1}{1-\frac{3}{4}}}}}$

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

5. (D) $\cfrac{1}{3-\cfrac{1}{1+\cfrac{1}{2-\frac{1}{4}}}} = \cfrac{1}{3-\cfrac{1}{1+\frac{4}{7}}} = \cfrac{1}{3-\frac{7}{11}} = \frac{11}{26}$

6. (B) $\left[4-\cfrac{5}{1+\cfrac{1}{3+\cfrac{1}{2+\frac{1}{4}}}}\right] = \left[4-\cfrac{5}{1+\cfrac{1}{3+\frac{4}{9}}}\right]$

$= \left[4-\cfrac{5}{1+\frac{9}{31}}\right] = \left[4-\frac{31}{8}\right] = \frac{1}{8}$

7. (C) $\cfrac{4\frac{2}{7}-\frac{1}{2}}{3\frac{1}{2}+1\frac{1}{7}} \div \cfrac{1}{2+\cfrac{1}{2+\cfrac{1}{5-\frac{1}{5}}}} = \cfrac{\frac{30}{7}-\frac{1}{2}}{\frac{7}{2}+\frac{8}{7}} \div \cfrac{1}{2+\cfrac{1}{2+\frac{5}{24}}}$

$= \frac{53}{14} \times \frac{14}{65} \div \cfrac{1}{2+\frac{24}{53}} = \frac{53}{65} \div \frac{53}{130} = \frac{53}{65} \times \frac{130}{53} = 2$

8. (C) $x = 1+\cfrac{1}{1+\cfrac{1}{1+\cfrac{1}{1+\frac{1}{2}}}}$

$\Rightarrow x = 1+\cfrac{1}{1+\cfrac{1}{1+\frac{2}{3}}} = 1+\cfrac{1}{1+\frac{3}{5}} = 1+\frac{5}{8} = \frac{13}{8}$

So, $2x+\frac{7}{4} = 2\times\frac{13}{8}+\frac{7}{4} = 5$

9. (D) $\frac{13}{48}=\frac{1}{3+\frac{9}{13}}=\frac{1}{3+\frac{1}{1+\frac{4}{9}}}$

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

10. (D)

11. (D) $\left(1-\frac{1}{4-\frac{2}{1+\frac{1}{\frac{1}{3}+2}}}\right)\times\frac{15}{16}\div\frac{2}{3}\text{ of }\frac{9}{4}-\frac{7}{27+64}$

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Solving Ist column

$$\left(1-\frac{1}{4-\frac{2}{1+\frac{3}{7}}}\right)=\left(1-\frac{1}{4-\frac{7}{5}}\right)$$

$$=\left(1-\frac{5}{13}\right)=\left(\frac{8}{13}\right)$$

Using this value in original equation

$$\frac{8}{13}\times\frac{15}{16}\div\frac{2}{3}\times\frac{9}{4}-\frac{7}{91}$$

$$\frac{8}{13}\times\frac{15}{16}\div\frac{3}{2}-\frac{1}{13}$$

$$\frac{8}{13}\times\frac{15}{16}\times\frac{2}{3}-\frac{1}{13}$$

$$\frac{5}{13}-\frac{1}{13}=\frac{4}{13}$$

12. (D) x = 2, y = 1, z = 5

$$\frac{29}{79}=\frac{7}{\frac{79}{29}}=\frac{1}{2+\frac{21}{29}}=\frac{1}{2+\frac{1}{\frac{29}{21}}}$$

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

$$=\frac{21}{4}=5+\frac{1}{4}$$

x = 2, y = 1, z = 5

= 2 × 2 + 3 × 1 – 5 = 2

13. (C) $2=x+\frac{1}{1+\frac{2}{11}}$

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

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

$$x=\frac{26-11}{13}=\frac{15}{13}$$

14.(B) $\frac{1}{a+\frac{1}{b+\frac{1}{c+\frac{1}{2}}}}=\frac{1}{\frac{23}{16}}=\frac{1}{1+\frac{7}{16}}$

$\therefore$ a = 1

$$\Rightarrow \frac{1}{a+\frac{1}{b+\frac{1}{c+\frac{1}{2}}}}=\frac{1}{1+\frac{1}{2+\frac{2}{7}}}$$

$\therefore$ b = 2

$$\Rightarrow \frac{1}{a+\frac{1}{b+\frac{1}{c+\frac{1}{2}}}}=\frac{1}{1+\frac{1}{2+\frac{1}{3+\frac{1}{2}}}}$$

$\therefore$ c = 3

Required answer = $\frac{3+2+1}{3}=2$

15. (A) $\frac{1}{1+\frac{1}{1+\frac{1}{1+\frac{1}{x}}}}=\frac{5}{8}$

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on revercing

$$\Rightarrow 1+\frac{1}{1+\frac{1}{1+\frac{1}{x}}}=\frac{8}{5} \Rightarrow 1+\frac{1}{1+\frac{1}{1+\frac{1}{x}}}=\left(\frac{8}{5}-1\right)$$

on revercing

$$\Rightarrow 1+\frac{1}{1+\frac{1}{x}}=\frac{5}{3} \Rightarrow \frac{1}{1+\frac{1}{x}}=\frac{5}{3}-1$$

on revercing

$$\Rightarrow 1+\frac{1}{x}=\frac{3}{2} \Rightarrow x=\frac{1}{2} \Rightarrow x=2$$

16. (C)