

$$1. \quad 5\left(\frac{a+3}{a}\right) = 5\left(\frac{a}{a} + \frac{3}{a}\right) = 5\left(1 + \frac{3}{a}\right) = 5 + \frac{15}{a}$$

a sayısı 15'in bölenleri olabilir. O halde a değerleri toplamı $1 + 3 + 5 + 15 = 24$ olur.

Cevap: C

$$2. \quad \frac{1}{6} + \frac{1}{8} - \frac{1}{3} + \frac{1}{6} + \frac{1}{8} - \frac{1}{3} + \dots + \frac{1}{6} + \frac{1}{8} - \frac{1}{3} + \frac{1}{6} + \frac{1}{8}$$

$$\frac{-1}{24} + \frac{-1}{24} + \dots + \frac{-1}{24} + \frac{1}{6} + \frac{1}{8}$$

$\frac{69}{3} = 23$ tane

$$23 \cdot \frac{-1}{24} + \frac{1}{6} + \frac{1}{8}$$

$$\frac{-23}{24} + \frac{1}{6} + \frac{1}{8}$$

$$\frac{-23+4+3}{24} = \frac{-16}{24} = -\frac{2}{3} \text{ olur.}$$

$$3. \quad A = \frac{2}{11} + \frac{3}{13} + \frac{5}{17}$$

$$+ \quad B = \frac{20}{11} - \frac{16}{13} - \frac{73}{17}$$

$$A + B = \frac{22}{11} - \frac{13}{13} - \frac{68}{17}$$

$$A + B = 2 - 1 - 4$$

$$A + B = -3$$

$$B = -3 - A$$

Cevap: E

$$4. \quad \text{Değeri } \frac{3}{2} \text{ olan kesir } \frac{3x}{2x} \text{ olsun.}$$

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

$$3x + 2 = 4x - 6$$

$$x = 8$$

$$\Rightarrow \frac{3x}{2x} = \frac{3 \cdot 8}{2 \cdot 8} = \frac{24}{16}$$

ve toplamları $24 + 16 = 40$ olur.

Cevap: C

$$5. \quad \frac{1}{1+2} + \frac{1}{1+2+3} + \dots + \frac{1}{1+2+\dots+12}$$

$$= \frac{1}{2 \cdot 3} + \frac{1}{3 \cdot 4} + \dots + \frac{1}{12 \cdot 13}$$

$$= \frac{2}{2 \cdot 3} + \frac{2}{3 \cdot 4} + \dots + \frac{2}{12 \cdot 13}$$

$$= 2\left(\frac{1}{2 \cdot 3} + \frac{1}{3 \cdot 4} + \dots + \frac{1}{12 \cdot 13}\right)$$

$$= 2\left(\frac{1}{2} - \frac{1}{3} + \frac{1}{3} - \frac{1}{4} + \dots + \frac{1}{12} - \frac{1}{13}\right)$$

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

Cevap: C

$$6. \quad \frac{6}{1+\frac{1}{5}} + \frac{7}{1+\frac{1}{6}} + \frac{8}{1+\frac{1}{7}} + \dots + \frac{17}{1+\frac{1}{16}}$$

$$= \frac{6}{\frac{6}{5}} + \frac{7}{\frac{7}{6}} + \frac{8}{\frac{8}{7}} + \dots + \frac{10}{\frac{10}{16}}$$

$$= 6 \cdot \frac{5}{6} + 7 \cdot \frac{6}{7} + 8 \cdot \frac{7}{8} + \dots + 17 \cdot \frac{16}{17}$$

$$= 5 + 6 + 7 + \dots + 16$$

$$= \frac{16 \cdot 17}{2} - \frac{4 \cdot 5}{2}$$

$$= 8 \cdot 17 - 2 \cdot 5$$

$$= 136 - 10$$

$$= 126 \text{ olur.}$$

Cevap: C

$$7. \quad \frac{a}{7} \text{ kesiri basit kesir ise } a \text{'nın alabileceği pozitif tam-} \\ \text{sayılar } 1, 2, 3, 4, 5, 6 \text{ 'dır.}$$

Bu değerler $\frac{6}{a}$ ifadesini daima bileşik kesir yapar.

Cevap: E

8. $\frac{2-a}{2a+1}$ ve $\frac{2a+1}{2-a}$ tamsayılar ise

i) $2-a=2a+1$ veya ii) $2-a=-2a-1$
 $1=3a$ $a=-3$
 $a=\frac{1}{3}$

\Rightarrow a'nın değerleri çarpımı $\frac{1}{3} \cdot (-3) = -1$ olur.

Cevap: B

9. $\frac{7}{2^2 \cdot 5^6} = 0,xyzmnk$

$\frac{2^4 \cdot 7}{2^4 \cdot 2^2 \cdot 5^6} = 0,xyzmnk$

$\frac{16 \cdot 7}{2^6 \cdot 5^6} = 0,xyzmnk$

$\frac{112}{10^6} = 0,xyzmnk$

0,000112 = 0,xyzmnk

$\Rightarrow m+n+k=1+1+2=4$ olur.

10. $\frac{a}{b} + \frac{b-a}{c} = m \Rightarrow \frac{a}{b} + \frac{b}{c} - \frac{a}{c} = m$

$\frac{a+b}{b} - \frac{a+3c}{c} + \frac{b+5c}{c}$
 $= \frac{a}{b} + \frac{b}{b} - \frac{a}{c} - \frac{3c}{c} + \frac{b}{c} + \frac{5c}{c}$
 $= \frac{a}{b} + 1 - \frac{a}{c} - 3 + \frac{b}{c} + 5$
 $= \frac{a}{b} + \frac{b}{c} - \frac{a}{c} + 3$
 $\underbrace{\hspace{1.5cm}}_m$
 $= m + 3$ olur.

Cevap: D

11. $\frac{2020\frac{1}{3} - 2019\frac{1}{2}}{(8-\frac{1}{7}) - (3-\frac{1}{7})} = \frac{2020 + \frac{1}{3} - 2019 - \frac{1}{2}}{8 - \frac{1}{7} - 3 + \frac{1}{7}}$
 $= \frac{\frac{1}{3} + \frac{1}{3} - \frac{1}{2}}{\frac{6}{6} - \frac{2}{6} - \frac{3}{6}} = \frac{\frac{6+2-3}{6}}{5} = \frac{5}{6} \cdot \frac{1}{5} = \frac{1}{6}$

Cevap: E

12. $= \frac{87 + \frac{2}{11}}{87 + 3 - \frac{31}{11}} - (-5)$

$= \frac{87 + \frac{2}{11}}{87 + \frac{2}{11}} + 5 = 1 + 5 = 6$ olur.

Cevap: D

13. $(1\frac{1}{2})(1\frac{1}{3})(1\frac{1}{4}) \dots (1\frac{1}{n}) = 30$

$\frac{2}{2} \cdot \frac{3}{3} \cdot \frac{4}{4} \dots \frac{n+1}{n} = 30$

$\frac{n+1}{2} = 30$

$n+1 = 60$

$n = 59$ olur.

Cevap: B

14. $\frac{x}{4} - \frac{x}{8} + \frac{x}{12} - \frac{x}{16} = \frac{1}{12} - \frac{1}{24} + \frac{1}{36} - \frac{1}{48}$

$\frac{12x - 6x + 4x - 3x}{48} = \frac{12 - 6 + 4 - 3}{12}$

$\frac{7x}{48} = \frac{7}{12} \Rightarrow x = 4$

Cevap: D