

1. Bu soruda denklem kuracağız.

Kova = x Bidon = y Şişe = z ve Bardak = m

- Bir kova 3 bidon dolduruyorsa

$$x = 3y$$

- Bir bidon 4 şişe dolduruyorsa

$$y = 4z$$

- Bir şişe 5 bardak dolduruyorsa

$$z = 5m$$

Bu eşitliklerden x ve m'yi bir araya getireceğiz.

O halde,

$$z = 5m \text{ ve } y = 4z \text{ z yerine yazılırsa}$$

$$y = 4 \cdot 5m = 20m$$

$$x = 3y \quad y = 20m \text{ yerine yazılırsa}$$

$$x = 3 \cdot 20m$$

x = 60 yani bir kova 60 bardak doldurur.

$$\frac{\text{Bardak}}{\text{Kova}} = \frac{m}{60m} = \frac{1}{60} \text{ olur.}$$

Cevap: A

$$2. \frac{0,006 + 0,15}{5,2 + 2,6} = \frac{0,156}{7,800} = \frac{156}{7800} = \frac{2}{100} = 0,02$$

Cevap: D

$$3. \left( \frac{2}{\sqrt{6}-\sqrt{5}} + \frac{4}{\sqrt{8}+\sqrt{6}} \right) \cdot \frac{4\sqrt{2}-2\sqrt{5}}{3}$$

eşlenikleri ile çarpalım.

$$= \left( \frac{2\sqrt{6}+2\sqrt{5}}{6-5} + \frac{4\sqrt{8}-4\sqrt{6}}{8-6} \right) \cdot \frac{4\sqrt{2}-2\sqrt{5}}{3}$$

$$= \left( 2\sqrt{6}+2\sqrt{5} + \frac{8\sqrt{2}-4\sqrt{6}}{2} \right) \cdot \frac{4\sqrt{2}-2\sqrt{5}}{3}$$

$$= (2\sqrt{6}+2\sqrt{5}+4\sqrt{2}-2\sqrt{6}) \cdot \frac{4\sqrt{2}-2\sqrt{5}}{3}$$

$$= \frac{(4\sqrt{2})^2 - (2\sqrt{5})^2}{3} = \frac{32-20}{3} = \frac{12}{3}$$

= 4 bulunur.

Cevap: D

$$4. \frac{5^{-2}-7^{-2}}{10^{-2}-14^{-2}} = \frac{(5^{-1})^2-(7^{-1})^2}{(10^{-1})^2-(14^{-1})^2}$$

$$= \frac{(5^{-1}+7^{-1}) \cdot (5^{-1}-7^{-1})}{(10^{-1}+14^{-1}) \cdot (10^{-1}-14^{-1})}$$

$$= \frac{\left(\frac{1}{5}+\frac{1}{7}\right) \cdot \left(\frac{1}{5}-\frac{1}{7}\right)}{\left(\frac{1}{10}+\frac{1}{14}\right) \cdot \left(\frac{1}{10}-\frac{1}{14}\right)}$$

$$= \frac{\frac{12}{35} \cdot \frac{2}{35}}{\frac{12}{70} \cdot \frac{2}{70}} = \frac{24}{35 \cdot 35} \cdot \frac{70 \cdot 70}{24}$$

$$= 4$$

Cevap: A

$$5. \begin{array}{r} C B 9 \\ - B 8 A \\ \hline 4 A C \end{array}$$

$$100C + 10B + 9 - 100B - 80 - A = 400 + 10A + C$$

$$99C - 90B - 11A = 471$$

$$\begin{array}{ccc} \downarrow & \downarrow & \downarrow \\ 6 & 1 & 3 \end{array}$$

$$A + B + C = 3 + 1 + 6$$

$$= 10$$

Cevap: A

$$6. \begin{array}{l} 5^{3a+b} = 125^{\frac{14}{3}}, \quad 5^{a+3b} = 25^7 \\ 5^{3a+b} = 5^3 \cdot \frac{14}{3}, \quad 5^{a+3b} = (5^2)^7 \\ 5^{3a+b} = 5^{14}, \quad 5^{a+3b} = 5^{14} \end{array}$$

$$3 / 3a + b = 14$$

$$3 \cdot \frac{7}{2} + b = 14$$

$$-1 / a + 3b = 14$$

$$b = 14 - \frac{21}{2}$$

$$9a + 3b = 42$$

$$b = \frac{28-21}{2}$$

$$-a - 3b = -14$$

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

$$8a = 28$$

$$a = \frac{28}{8} = \frac{7}{2}$$

$$a = \frac{28}{8} = \frac{7}{2}$$

$$a+b = \frac{7}{2} + \frac{7}{2} = \frac{14}{2} = 7$$

$$a+b = \frac{7}{2} + \frac{7}{2} = \frac{14}{2} = 7$$

Cevap: B

$$7. \frac{7! + 6! + 5!}{5! \cdot 7} = \frac{5! \cdot (7 \cdot 6 + 6 + 1)}{5! \cdot 7}$$

$$= \frac{42 + 6 + 1}{7} = \frac{49}{7} = 7$$

Cevap: D

$$8. 2 - \left[ 1 - \frac{x}{3} - (2 + x) \right] = \frac{x}{3}$$

$$2 - \left[ 1 - \frac{x}{3} - (2 + \frac{x}{3}) \right] = \frac{x}{3}$$

$$2 - \left[ -1 - \frac{x - 3x}{3} \right] = \frac{x}{3}$$

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

$$3 = \frac{x}{3} - \frac{4x}{3} = -\frac{3x}{3}$$

$$3 = -x$$

$$x = -3$$

$$9. \bullet \frac{(x+y)}{\text{Tek}} \cdot \frac{z}{\text{Tek}} \rightarrow \text{Tek}$$

$$\bullet \frac{(z+x)}{\text{Tek}} \cdot \frac{(y-z)}{\text{Tek}} \rightarrow \text{Tek}$$

$$\frac{(z+x)}{\text{Tek}} \rightarrow \text{Tek}$$

$$\frac{x+y}{\text{Çift Tek}} \rightarrow \text{Tek}$$

$$x \rightarrow \text{Çift}, y \rightarrow \text{Tek}, z \rightarrow \text{Tek}$$

$$I. \frac{x \cdot y \cdot z}{\text{Ç T T}} \rightarrow \text{Çift}$$

$$II. \frac{(z+y) \cdot x}{\text{Çift}} \rightarrow \text{Çift}$$

$$III. \frac{x+y-z}{\text{Çift Tek Tek}} \rightarrow \text{Çift}$$

I, II ve III çift

Cevap: E

$$10. (a^2 + ab) : \left( \frac{a+2b}{a^2-4b^2} \cdot \frac{a^2-2ab}{b^2} \right)$$

$$= a(a+b) : \left( \frac{(a+2b)}{(a-2b)(a+2b)} \cdot \frac{a(a-2b)}{b^2} \right)$$

$$= a \cdot (a+b) \cdot \frac{b^2}{a} = b^2(a+b)$$

$$= ab^2 + b^3$$

Cevap: C

$$11. \frac{\sqrt{a^3 \cdot b}}{\sqrt{a}} + \frac{\sqrt{a^2 \cdot b^2}}{\sqrt{b}} = \frac{2\sqrt{a}}{3}$$

$$\Rightarrow \frac{a\sqrt{a} \cdot \sqrt{b}}{\sqrt{a}} + \frac{a \cdot b}{\sqrt{b}} = \frac{2\sqrt{a}}{3}$$

$$\Rightarrow a\sqrt{b} + \frac{a \cdot b \sqrt{b}}{b} = \frac{2\sqrt{a}}{3}$$

$$2a\sqrt{b} = \frac{2\sqrt{a}}{3}$$

$$(6a\sqrt{b})^2 = (2\sqrt{a})^2$$

$$36a \cdot b = 4a$$

$$36a \cdot b = 4 \Rightarrow a \cdot b = \frac{4}{36} = \frac{1}{9}$$

Cevap: C

$$12. a - b < a + b < 2a$$

$$i) a - b < a + b$$

$$0 < 2b \Rightarrow b > 0$$

$$ii) a + b < 2a \Rightarrow b < a$$

$$iii) a - b < 2a \Rightarrow -a < b \Rightarrow a > 0$$

$$I. b - a < 0 \Rightarrow b < a \text{ doğru}$$

$$II. a + b > 0 \Rightarrow b < -a \text{ doğru}$$

$$III. \frac{a}{b} > 1 \Rightarrow a > b \text{ doğru}$$

I, II ve III doğrudur.

Cevap: E

13.  $a + b \neq 0$

$$\frac{a^2 + ab}{11} = \frac{b^2 + ab}{9}$$

$$\frac{a(a+b)}{11} = \frac{b(b+a)}{9}$$

$$\frac{a}{11} = \frac{b}{9} = k \Rightarrow a = 11k$$
$$b = 9k$$

$$\frac{a+b}{a-b} = \frac{11k+9k}{11k-9k} = \frac{20k}{2k} = 10$$

Cevap: A

14. ABCD dört basamaklı sayımız

- $A + B + C + D = 9k$
- $A + B + C + D$

↓

3 veya 8 olmalı

- Rakamları farklı olmalı

<u>En büyük</u>	<u>En küçük</u>
9873	1053

Bu sayıların toplamı  $9873 + 1053 = 10926$

Cevap: B

15. En küçük ortanca sayı

$$10 + 12 + 14 + 16 = 52$$

$$\frac{52}{4} = 13$$

En büyük

$$92 + 94 + 96 + 98 = 380 = 380$$

$$\frac{380}{4} = 95$$

$$13 - 95 = 108 \text{ bulunur.}$$

Cevap: A