

ÇÖZÜMLER

1.

$$\frac{2017 - 2013 + \frac{3}{4} + \frac{1}{4}}{1017 - 1014 + \frac{2}{5} - \frac{2}{5}} = \frac{5}{3}$$

2.

$$\begin{aligned} 0,3 + \frac{0,2}{0,2 + \frac{0,1}{0,5}} &= 0,3 + \frac{0,2}{\frac{2}{10} + \frac{1}{5}} \\ &= 0,3 + \frac{0,2}{0,4} \\ &= \frac{3}{10} + \frac{1}{2} \\ &= 0,8 \end{aligned}$$

3.

$$\begin{aligned} \frac{(b-a)^2}{(2-a)^2 - b^3} &= \frac{(-2-2)^2}{(2-2)^2 - (-2)^3} \\ &= \frac{(-4)^2}{0 - (-8)} = \frac{16}{8} = 2 \end{aligned}$$

4.

$$\begin{aligned} \frac{\sqrt{2}+1}{\sqrt{2}-1} - \frac{8}{2\sqrt{2}} &= \frac{8}{(\sqrt{2}+1)(\sqrt{2}-1)} - \frac{8}{2\sqrt{2}} \\ \frac{(\sqrt{2}+1)^2}{2-1} - \frac{8\sqrt{2}}{4} &= 3 + 2\sqrt{2} - 2\sqrt{2} = 3 \end{aligned}$$

5.

$$\begin{array}{r} a+b=2 \\ a+c=13 \\ + \quad b+c=9 \\ \hline 2(a+b+c)=24 \\ a+b+c=12 \end{array} \quad \left. \begin{array}{l} c=10 \\ a=3 \\ b=-1 \end{array} \right\}$$

$$x-1=6 \Rightarrow x=7$$

$$y+3=-2 \Rightarrow y=-5$$

$$z-4=20 \Rightarrow z=24$$

$$x+y+z=7-5+24$$

$$x+y+z=26$$

6.

2, 4, 6, 8, ..., 60 boyalı

3, 6, 9, 12, ..., 60 boyalı

4, 8, 12, 16, ..., 60 boyalı

$$\begin{array}{r} 4, 8, 12, 16, \dots, 60 \rightarrow 15 \\ 12, 24, 36, 48, 60 \rightarrow \frac{5}{10} \end{array}$$

$$\begin{array}{r} 6, 12, 18, \dots, 60 \rightarrow 10 \\ 12, 24, 36, 48, 60 \rightarrow \frac{5}{5} \end{array}$$

$$10 + 5 = 15$$

7.

$$\begin{array}{r} \dots\dots\dots 7 \\ \dots\dots\dots 8 \\ \dots\dots\dots 9 \\ \dots\dots\dots 10 \end{array} \quad \begin{array}{c} \dots\dots\dots 1 \\ \dots\dots\dots 2 \\ \vdots \end{array}$$

$$\text{Toplam kullanılan sayı : } 1 + 2 + 3 + \dots + 10 = 55$$

8.

$$\frac{(a-3)! + 3(a-1)!}{(a+2)! - \left(1 - \frac{a}{3}\right)!} = ?$$

$$\left. \begin{array}{l} a-3 \geq 0 \Rightarrow a \geq 3 \\ \frac{3-a}{3} \geq 0 \Rightarrow 3-a \geq 0 \Rightarrow a \leq 3 \end{array} \right\} \Rightarrow a = 3 \text{ olmalıdır.}$$

$$\frac{(3-3)! + 3(2)!}{(5)! - (1-1)!} = \frac{7}{119} = \frac{1}{17}$$

9.

$$m \cdot n = 5n + 6$$

$$n(m - 5) = 6$$

$$n = -3 \quad \text{iken} \quad m = 3$$

$$n = -2 \quad \text{iken} \quad m = 2$$

$$n = 1 \quad \text{iken} \quad m = 11$$

$$n = 3 \quad \text{iken} \quad m = 7$$

10.

$$31 + 2 = 33 = 3 \cdot 11 \quad (+)$$

$$41 + 2 = 43 \quad (+)$$

$$53 + 2 = 55 = 5 \cdot 11 \quad (+)$$

$$89 + 2 = 91 = 7 \cdot 13 \quad (+)$$

$$97 + 2 = 99 = 3^2 \cdot 11 \quad (-)$$

11.

$$A = \{8, 5, 3, 2\}$$

$$abc = 352$$

$$bcd = 528$$

$$acb = 325 \text{ olmalı}$$

$$a = 3, \quad b = 5, \quad c = 2, \quad d = 8$$

$$b \cdot d = 5 \cdot 8 = 40 \text{ bulunur.}$$

12.

$$|x-1| + |x-2| + \dots + \underbrace{|x-8|}_{x=8 \text{ seçilirse}} + \dots + |x-15|$$

$x = 8$ seçilirse

$$7 + 6 + 5 + \dots + 0 + 1 + \dots + 7 = 56$$

13.

A	B	}	$\frac{80 \cdot 24}{100} + \frac{40 \cdot 36}{100} = \frac{168}{5}$
6 tuz	18 tuz		
19 su	32 su		
% 24 tuz	% 36 tuz		
120	$\frac{168}{5}$		
100	?		
? = % 28			

14.

$$a < 0 < a + c < c - b$$

$$a < a + c \quad a + c < c - b$$

$$c > 0 \quad a < -b$$

$$a + b < 0$$

I. öncül	+	a + b < 0
II. öncül	-	- +
III. öncül	-	- -
		a · b < 0
		a · b > 0

15.

$$s(E) = 7, \quad s(A) = n, \quad s(A') = 7 - n$$

$$2^n > 2^{7-n} \Rightarrow n > 7 - n \Rightarrow n > 3,5$$

$$A = \{1, 3, 5, 7\}$$

$$\text{Toplam en az : } 1 + 3 + 5 + 7 = 16 \text{ dir. } A = \{3, 5, 7, 9, 11, 13\}$$

$$\text{Toplam en fazla : } 48 \text{ dir. } 48 - 16 = 32 \text{ bulunur.}$$

16.

Rabia	Mustafa	Beyza
27a	45a	36a
	↗ 9a ↘	
18a	54a	36a
		↗ 18a ↘
18a	36a	54a
	↖ 18a ↗	
36a	36a	36a
$\frac{\text{Beyza}}{\text{Mustafa}} = \frac{36}{45} = \frac{4}{5}$		

17.

$$19x + 5 : 17y : x + 2$$

$$1 + 9 + x + 5 + 1 + 7 + y = 10x + 2$$

$$\begin{array}{r} 21 + y = 9x \\ \downarrow \quad \downarrow \\ 6 \quad 3 \end{array}$$

$$x = 3, y = 6$$

$$x \cdot y = 18 \text{ bulunur.}$$

18.

İşin tamamı 30k olsun.

Sinan	Orkun	Resul
3k	2k	k

3 gün Sinan ve Orkun'un yaptığı iş; $3 \cdot 5k = 15k$

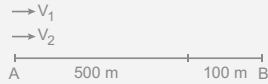
Resul ve Orkun bir günde 3k iş yaptıklarına göre,

15k işi 5 günde yaparlar.

19.

$V_1 < V_2$ olsun.

$$\frac{500}{700} = \frac{V_1 \cdot t}{V_2 \cdot t} \Rightarrow \frac{V_1}{V_2} = \frac{5}{7}$$



20.

$$\left. \begin{array}{l} \frac{A \cdot 30}{100} < 300 \Rightarrow A < 1000 \\ \frac{B \cdot 30}{100} > 300 \Rightarrow B > 1000 \end{array} \right\} A < 1000 < B$$

21.

	1.	2.
	$\frac{\quad}{3x}$	$\frac{\quad}{4y}$
Findık	x	3y
Fıstık	2x	y
	$x = 3y$	$3x + 4y = 65$
		\downarrow
		3y
		$13y = 65 \Rightarrow y = 5 \Rightarrow x = 15$
		$3x = 45$

22.

Mavi	Kırmızı	Beyaz
18	10	x
$18 + x + 1 = 40$		
$x = 21$		
$18 + 10 + 21 = 49$		

23.

$$\begin{aligned} \frac{x - \frac{4}{x}}{x^2 + x - 6} \cdot \frac{x + 2}{x} &= \frac{\frac{x^2 - 4}{x}}{(x + 3)(x - 2)} \cdot \frac{x}{x + 2} \\ &= \frac{\cancel{(x - 2)}(x + 2)}{x(x + 3)\cancel{(x - 2)}} \cdot \frac{x}{(x + 2)} \\ &= \frac{1}{x + 3} \end{aligned}$$

24.

$x = 2$ için

$$0 = 4 - (m + 3) \cdot 2 - 24 \Rightarrow m = -13$$

$$(x - 2) \cdot P(x) = x^2 + 10x - 24$$

$$P(x) = x + 12$$

$$P(2) = 14$$

25. $x^2 - 12x - 6 = 0$
 $x_1 + x_2 = 12$, $x_1 \cdot x_2 = -6$
 $\frac{1}{x_1} + \frac{1}{x_2} = \frac{x_1 + x_2}{x_1 \cdot x_2} = \frac{12}{-6} = -2$

26. $F(2x - 5) = 5x - 3$

$2x - 5 = 9 \Rightarrow x = 7$

$F(9) = 32$

$5x - 3 = 7 \Rightarrow x = 2$

$F(-1) = 7 \Rightarrow F^{-1}(7) = -1$

$-1 + 32 = 31$

27. $3a + 5b = 89$
 $28 \quad 1$
 $23 \quad 4$
 $18 \quad 7$
 $13 \quad 10$
 $8 \quad 13$
 $3 \quad 16$
 $6 \left\{ \begin{array}{l} 28 \quad 1 \\ 23 \quad 4 \\ 18 \quad 7 \\ 13 \quad 10 \\ 8 \quad 13 \\ 3 \quad 16 \end{array} \right\} 4$
 $\frac{4}{6} = \frac{2}{3}$

28. $\square_{B} K_1 E_1 \square_{B} K_2 E_2 \square_{B} K_3 E_3 \square_{B}$

$4! \cdot 3! \cdot 2! \cdot 2! \cdot 2! = 1152$

29. $z_1 = z_2 \Rightarrow \text{Re}(z_1) = \text{Re}(z_2)$

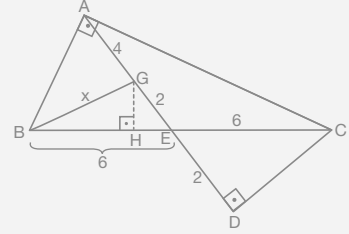
$\text{Im}(z_1) = \text{Im}(z_2)$

$2a - 1 = -3 \Rightarrow a = -1$

$b - 2 = -3 \Rightarrow b = -1$

$a + b = -2$

30.



G ağırlık merkezi ise $|AG| = 4$ br

$|AG| = |GD|$ olduğundan $|ED| = 2$ br

$|AE| = |BE| = |EC|$ olduğundan $|BE| = |EC| = 6$ br olur.

$[GH] \perp [BC]$ çizilirse $\widehat{GHE} \sim \widehat{CDE}$ olacağından

$|HE| = \frac{2}{3}$ br ve $|BH| = \frac{16}{3}$ olur.

GHE dik üçgeninde pisagor bağıntısından $|GH|^2 = \frac{32}{9}$ br² olur.

BHG dik üçgeninde pisagor bağıntısından;

$|BG| = x = 4\sqrt{2}$ br bulunur.

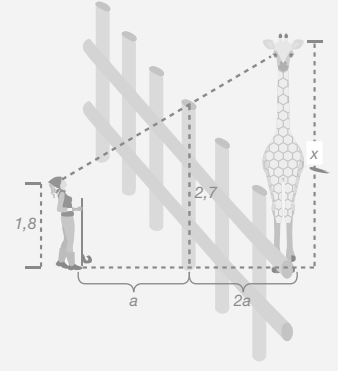
31.

$\frac{x - 2,7}{2,7 - 1,8} = \frac{2a}{a}$

(Thales Teoremi)

$x - 2,7 = 2 \cdot (0,9)$

$x = 4,5$ m olur.



32.

$|AC| = |AD| = 5$ cm

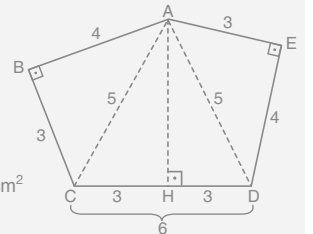
(Pisagor bağıntısı) olur.

$[AH] \perp [CD]$ çizilirse

$|CH| = |HD| = 3$ cm olur.

$A(ABCDE) = 4 \cdot \frac{3 \cdot 4}{2} = 24$ cm²

bulunur.



33.

Çevrel çemberin merkezi
üçgenin iç bölgesinde
olduğundan,

$m(\widehat{BAC}) < 90^\circ$ olur.

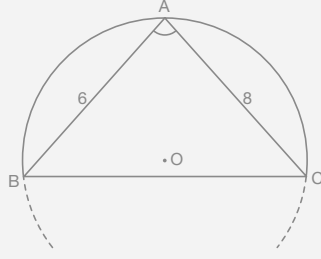
$2 < |BC| < 14$

(Açı-kenar ilişkisi) ve

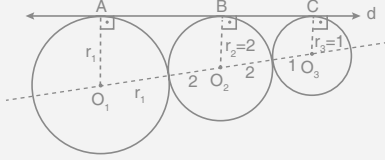
$|BC|^2 < 6^2 + 8^2$ ise

$|BC| < 10$ olduğundan $2 < |BC| < 10$ olur.

Bu durumda $|BC|$ en büyük 9 değerini alır.



34.



Thales teoreminden, $\frac{r_1 - 2}{2 - 1} = \frac{r_1 + 2}{3}$ ise

$$3r_1 - 6 = r_1 + 2$$

$$2r_1 = 8$$

$$r_1 = 4 \text{ cm bulunur.}$$

35.

Katlama işleminde simetriklik
oluşturduğu için ;

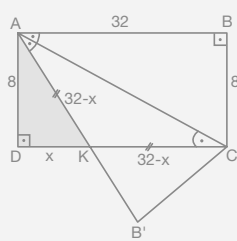
$m(\widehat{BAC}) = m(\widehat{CAB'}) = m(\widehat{ACD})$

ve $|AK| = |KC| = 32 - x$ cm olur.

ADK dik üçgeninde

$x = 15$ cm bulunur.

(8, 15, 17 üçgeni)



36.

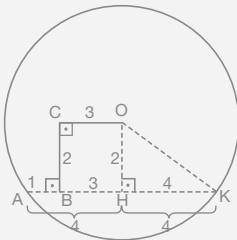
A, B, K noktalarından geçen kiriş
için $|OH| \perp |AK|$ çizilirse

$|BH| = 3$ br

$|AH| = |HK| = 4$ br olur.

$|OK|^2 = 2^2 + 4^2 = 20 \text{ cm}^2 \Rightarrow$

Alan = $20\pi \text{ cm}^2$ bulunur.



37.

ADEB deltoid ve

$|AB| = |AD|$ ise

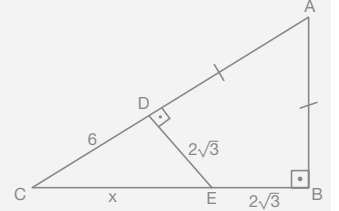
$|BE| = |ED| = 2\sqrt{3}$ br

$|ED| \perp |AC|$ olur.

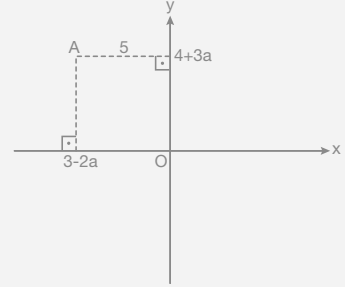
DEC dik üçgeninde
pisagor bağıntısından

$x^2 = 6^2 + (2\sqrt{3})^2$ ise

$x = 4\sqrt{3}$ br bulunur.



38.



$3 - 2a < 0 \Rightarrow 3 - 2a = -5 \Rightarrow 2a = 8$ ve $a = 4$ olur.

$A(-5 \ 16)$ olacağından koordinatları çarpımı $(-5) \cdot 16 = -80$ bulunur.

39.

$d_1 : \frac{x}{3} + \frac{y}{9} = 1$ ise

$d_1 : 3x + y - 9 = 0$

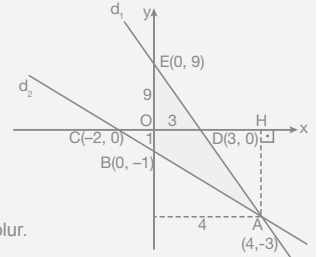
$d_2 : \frac{x}{-2} + \frac{y}{-1} = 1$ ise

$d_2 : x + 2y + 2 = 0$

$d_1 \cap d_2 = \{A\}$ ise

ortak çözümden $A(4, -3)$ olur.

$A(\widehat{AEB}) = \frac{10 \cdot 4}{2} = 20 \text{ br}^2$ bulunur.



40.

$m(\widehat{CAO}) = 30^\circ$ ise

$|CO| = 4$ cm

$|AO| = 4\sqrt{3}$ cm olur.

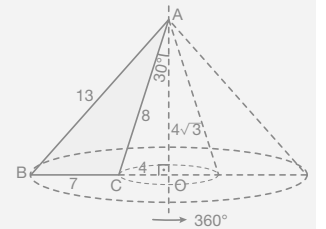
$|AB| = 13$ cm

(AOB dik üçgeninde
pisagor) olur.

Cismin yüzey alanı;

$\frac{2 \cdot \pi \cdot 11 \cdot 13}{2} + \frac{2 \cdot \pi \cdot 4 \cdot 8}{2} + \pi(11^2 - 4^2) = 280\pi \text{ cm}^2$ bulunur.

[[Büyük koni] + [Küçük koni] + [Halka]]



CEVAP ANAHTARI

- | | | | | | | | | | | | | | | | | | | | |
|----|---|----|---|-----|---|-----|---|-----|---|-----|---|-----|---|-----|---|-----|---|-----|---|
| 1. | E | 5. | E | 9. | C | 13. | C | 17. | C | 21. | E | 25. | A | 29. | B | 33. | C | 37. | C |
| 2. | A | 6. | C | 10. | E | 14. | A | 18. | D | 22. | D | 26. | C | 30. | D | 34. | B | 38. | A |
| 3. | E | 7. | E | 11. | E | 15. | A | 19. | D | 23. | A | 27. | B | 31. | B | 35. | C | 39. | C |
| 4. | E | 8. | B | 12. | A | 16. | C | 20. | A | 24. | C | 28. | E | 32. | C | 36. | A | 40. | D |