

1

$$(m+1)x - (mx+x)^2$$

$$(mx+x) - (mx+x)^2$$

$$(mx+x) \cdot (1-mx-x)$$

$$x \cdot (m+1) \cdot (1-mx-x)$$

Cevap A

2

$$ax - bx - a + b$$

$$x(a-b) - (a-b)$$

$$(a-b) \cdot (x-1)$$

Cevap E

3

$$\begin{array}{r} a-b=3 \\ c-b=-2 \\ \hline a-c=5 \end{array}$$

$$ac+bc-ab-c^2$$

$$a(c-b)+c(b-c)$$

$$a(c-b)-c(c-b)$$

$$(a-c) \cdot (c-b)$$

$$5 \cdot (-2) = -10$$

Cevap B

4

$$\frac{(312^2-12^2) \cdot (320 \cdot 300)}{4x} = 75$$

$$\frac{(312-12) \cdot (312+12) \cdot 320 \cdot 300}{4x} = 75$$

$$\cancel{300} \cdot 324 - \cancel{320} \cdot \cancel{300} = \cancel{300}x$$

$$324 - 320 = x$$

$$\Rightarrow x = 4$$

Cevap C

5

$2^{\frac{1}{3}} + 1 = a$ olmak üzere,

$$\frac{(2^{\frac{1}{6}} - 1) \cdot (2^{\frac{1}{6}} + 1)}{(4^{\frac{1}{3}} - 1)} \rightarrow \frac{2^{\frac{1}{3}} - 1}{(2^{\frac{1}{3}} - 1)(2^{\frac{1}{3}} + 1)}$$

$$= \frac{1}{2^{\frac{1}{3}} + 1} = \left(\frac{1}{a} \right) \quad \text{Cevap A}$$

6

$$A = 444 \quad B = 222$$

$$\frac{(A-B)^2 + 4AB}{(A+B)^2 - 4AB} = \frac{A^2 + 2AB + B^2}{A^2 - 2AB + B^2}$$

$$\frac{(A+B)^2}{(A-B)^2} = \frac{666^2}{222^2} = 3^2 = 9$$

Cevap D

7

$$x \cdot y = 7$$

$$\frac{2^{(x+y)^2}}{2^{(x-y)^2}} = \frac{2^{x^2+y^2+2xy}}{2^{x^2+y^2-2xy}}$$

$$= 2^{4xy} = 2^{28}$$

Cevap D

8

$$x^2 - 6x + 10 = \underbrace{(x-3)^2}_0 + 1$$

Cevap A

9

$$(a+b)^2 = 7^2 \quad a^2 + b^2 = 9$$
$$\underbrace{a^2 + b^2}_{9} + 2ab = 49$$
$$2ab = 40$$

$$\frac{ab}{2} = 10 \quad \text{Cevap E}$$

10

$$\frac{x^2}{x} - \frac{4x}{x} - \frac{1}{x} = \frac{0}{x}$$

$$x - 4 - \frac{1}{x} = 0$$

$$\left(x - \frac{1}{x}\right)^2 = 4^2$$

$$x^2 + \frac{1}{x^2} - 2 = 16$$

$$\Rightarrow x^2 + \frac{1}{x^2} = 18$$

Cevap D

$$(11) \quad x = 2^m + 2^{-m}, \quad y = 4^m + 4^{-m}$$

$$x^2 = 4^m + 4^{-m} + 2$$

$$\Rightarrow x^2 - y = \cancel{4^m} + \cancel{4^{-m}} + 2 - \cancel{4^m} - \cancel{4^{-m}}$$

$$x^2 - y = 2$$

Cevap C

$$(12) \quad (y - x - z)^2 = 36$$

$$\underbrace{x^2 + y^2 + z^2}_{40} - 2xy - 2yz + 2xz = 36$$

$$40 - 2(xy + yz - xz) = 36$$

$$\Rightarrow xy + yz - xz = 2$$

Cevap D

$$\begin{array}{l} \textcircled{13} \quad x-y=-3 \\ \quad \quad x \cdot y=-1 \\ \hline x^3-y^3 = \underbrace{(x-y)}_{-3} \cdot \underbrace{(x^2+y^2+xy)}_{\substack{7 \\ -1}} \end{array}$$

$$\begin{aligned} (x-y)^2 &= (-3)^2 \\ x^2+y^2-2xy &= 9 \\ x^2+y^2+2 &= 9 \\ x^2+y^2 &= 7 \end{aligned}$$

$$\begin{aligned} x^3-y^3 &= (-3) \cdot 6 \\ &= \textcircled{-18} \end{aligned}$$

Cevap c

14

$$a^2 + \frac{1}{a^2} = 7$$

$$a^3 + \frac{1}{a^3} = \underbrace{\left(a + \frac{1}{a}\right)}_3 \cdot \underbrace{\left(a^2 + \frac{1}{a^2} - 1\right)}_6$$

$$= 18$$

$$\left(a + \frac{1}{a}\right)^2 = \underbrace{a^2 + \frac{1}{a^2}}_7 + 2$$

Cevap C

$$\left(a + \frac{1}{a}\right)^2 = 9$$

$$a + \frac{1}{a} = 3$$

15

$$a^3 + 3a^2b = 63$$

$$+ 3ab^2 + b^3 = 62$$

$$\hline a^3 + 3a^2b + 3ab^2 + b^3 = 125$$

$$(a+b)^3 = 125$$

$$a+b=5$$

Cevap A

16

$$X = \sqrt[3]{5} - 1$$

$$X^3 + 3X^2 + 3X - 1 + 2 - 2$$

$$(X+1)^3 - 2$$

$$(\sqrt[3]{5})^3 - 2$$

$$5 - 2 = 3$$

Cevap C

17

$$X - y = 3 \Rightarrow x = y + 3$$

$$\frac{x^2 + y^2 - 2xy}{x^2 - y^2 + 2x - 2y}$$

$$= \frac{(x-y)^2}{(x-y)(x+y) + 2(x-y)} = \frac{(x-y)^2}{(x-y) \cdot (x+y+2)}$$

$$\frac{\cancel{3}}{\cancel{3}(x+y+2)} = \frac{3}{2y+5}$$

↓
y+3

Cevap A

1

$$\underline{ac} + b^2 - \underline{ab} - bc$$

$$a(c-b) + b(b-c)$$

$$a(c-b) - b(c-b)$$

$$(a-b) \cdot (c-b)$$

Cevap E

2

$$x-y=5$$

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

$$= 5 \cdot (x+y) - 10x$$

$$= 5x + 5y - 10x$$

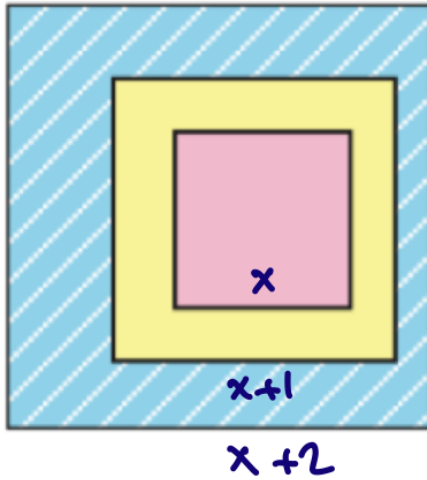
$$= 5y - 5x$$

$$= 5 \cdot (y-x)$$

$$= 5 \cdot (-5) = -25$$

Cevap A

3



$$(x+2)^2 - (x+1)^2 = ?$$

$$49 - 36 = 13$$

$$(x+1)^2 - x^2 = 11 \text{ (Soru)}$$

$$2x+1=11$$

$$x=5$$

Cevap B

4

$$x^2 - y^2 = 72$$

$$\frac{1}{x+y} + \frac{1}{x-y} = \frac{4}{9}$$

$$\Rightarrow \frac{2x}{x^2 - y^2} = \frac{4}{9}$$

$$\frac{2x}{72} = \frac{4}{9}$$

8

$$\Rightarrow x = 16$$

Cevap C

5

$$x^2 - xy + y^2 = 67$$

$$(x-y)^2 = 2^2 \Rightarrow x^2 + y^2 - 2xy = 4$$

$$x^2 + y^2 = 4 + 2xy$$

$$4 + 2xy - xy = 67$$

$$x \cdot y = 63$$

Cevap D

6

$$A = 35 \cdot 65 + 65^2$$

$$B = 35 \cdot 65 + 35^2$$

$$A - B = 65^2 - 35^2$$

$$A + B = (65 + 35)^2$$

$$\Rightarrow \frac{A-B}{A+B} = \frac{(65-35) \cdot (65+35)}{(65+35)^2}$$

$$= \frac{30}{100} = 0,3$$

Cevap D

7

a	b
---	---

 $= a^2 + ab + b^2$

a - b	b
-------	---

$$\begin{aligned} &= (a-b)^2 + (a-b) \cdot b + b^2 \\ &= a^2 + b^2 - 2ab + ab - \cancel{b^2} + \cancel{b^2} \\ &= a^2 + b^2 - ab \end{aligned}$$

$$= \begin{array}{|c|c|} \hline b & -a \\ \hline \end{array} = b^2 - ab + a^2$$

Cevap D

8

$$x^3 - y^3 = x - y = 5$$

$$\begin{array}{c} \swarrow \\ (x-y) \cdot (x^2 + y^2 + xy) = 5 \\ \underbrace{\hspace{1cm}}_5 \cdot \underbrace{\hspace{1cm}}_{(25+3xy)} \end{array}$$

$$25 + 3xy = 1$$

$$3xy = -24$$

$$xy = -8$$

$$\begin{array}{l} x - y = 5 \\ x^2 + y^2 - 2xy = 25 \end{array}$$

$$x^2 + y^2 = 25 + 2xy$$

Cevap E

9

$$x^3 - 27y^3 = 19$$

$$9 / 3xy^2 - x^2y = 5$$

$$27xy^2 - 9x^2y = 45$$

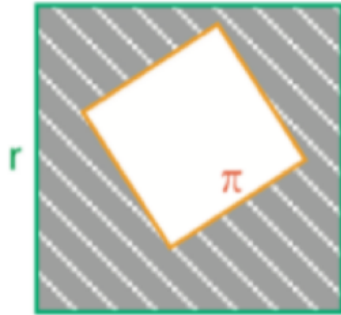
$$x^3 - 9x^2y + 27xy^2 - 27y^3 = 64$$

$$(x - 3y)^3 = 64$$

$$x - 3y = 4$$

Cevap D

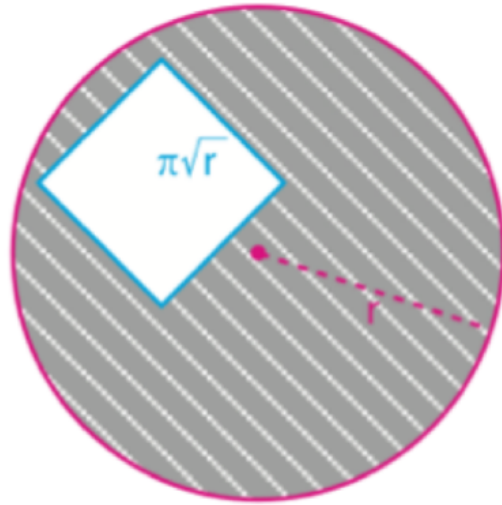
10



Şekil 1

$$\downarrow$$

$$r^2 - \pi^2$$



Şekil 2

$$\downarrow$$

$$\pi r^2 - \pi^2$$

$$\frac{r^2 - \pi^2}{\pi r^2 - \pi^2 r}$$

$$= \frac{(r - \pi) \cdot (r + \pi)}{\pi r (r - \pi)} = \frac{r + \pi}{\pi r}$$

$$= \frac{1}{\pi} + \frac{1}{r}$$

Cevap B

II

$$x^2 + \underline{22 - 4n}$$

$$22 - 4n < 0$$

$$4n > 22$$

$$n > \frac{11}{2}$$

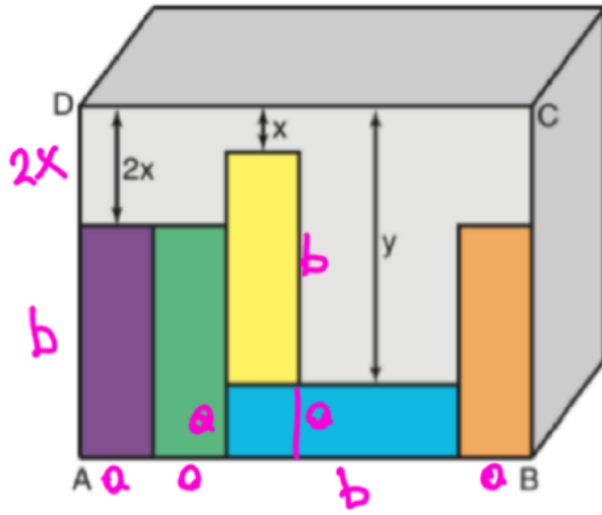
Cevap C

$$n_{\min} = 6$$

$$x^2 - 2 = (x - \sqrt{2}) \cdot (x + \sqrt{2})$$

olur.

12

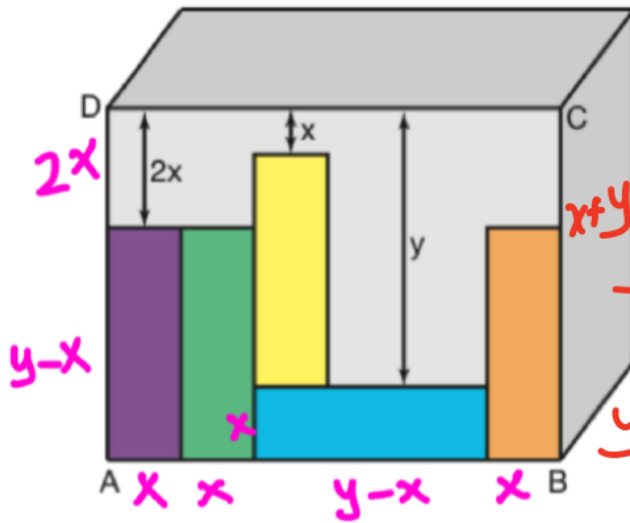


$$b + 2x = a + b + x$$

$$a = x$$

$$2x + b = y + a$$

$$b = y - x$$



Yan yüz

$$(x+y) \cdot y$$

Ön yüz

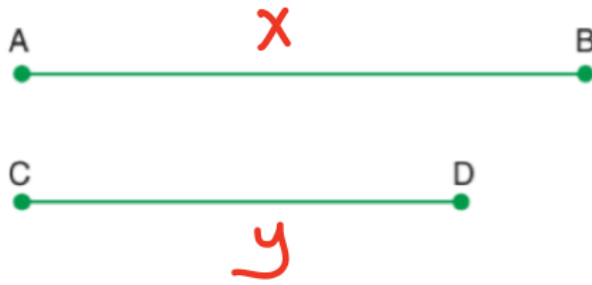
$$(x+y) \cdot (2x+y)$$

Cevap A

$$(x+y) \cdot (2x+y) + (x+y) \cdot y$$

$$(x+y) \cdot (2x+2y) = 2 \cdot (x+y)^2$$

13



$$x^3 + y^3 = 36$$

$$3/x^2 \cdot y + x \cdot y^2 = 15$$

$$3x^2y + 3xy^2 = 45$$

$$x^3 + 3x^2y + 3xy^2 + y^3 = 81$$

$$(x+y)^3 = 81$$

$$x+y = \sqrt[3]{81} = 3\sqrt[3]{3}$$

Cevap D

14

$$x = 987$$

$$\frac{x^3 + x^2 - 4x - 4}{(x+1) \cdot (x-2)}$$

$$= \frac{x^2(x+1) - 4(x+1)}{(x+1) \cdot (x-2)}$$

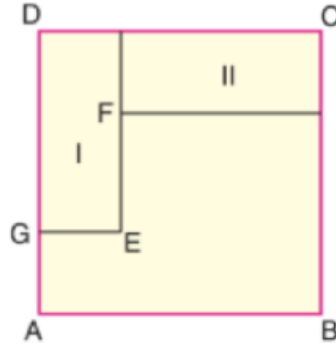
$$= \frac{\cancel{(x+1)} \cdot \cancel{(x-2)} \cdot (x+1)}{\cancel{(x+1)} \cdot \cancel{(x-2)}}$$

$$= x+1 = 989$$

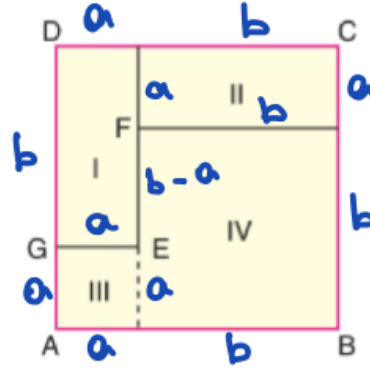
Cevap B

15

I ve II bölgeleri özdeş dikdörtgendir.



ŞEKİL 1



ŞEKİL 2

$$\frac{IV - III}{I + III} = ?$$

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

$$\frac{b-a}{a} = \frac{|EF|}{|GE|}$$

Cevap C

1

$$x + y - xy = 41$$

$$x - 1 + y - xy = 41 - 1$$

$$(x-1) - y(x-1) = 40$$

$$(x-1) \cdot (1-y) = 40$$

Cevap A

2

$$(9+8) \cdot (9^2+8^2) = 3^x - 8^4$$

$$(9-8) \cdot (9+8) \cdot (9^2+8^2) = (9-8) \cdot (3^x - 8^4)$$

$\underbrace{(9-8) \cdot (9+8) \cdot (9^2+8^2)}_{9^2-8^2}$

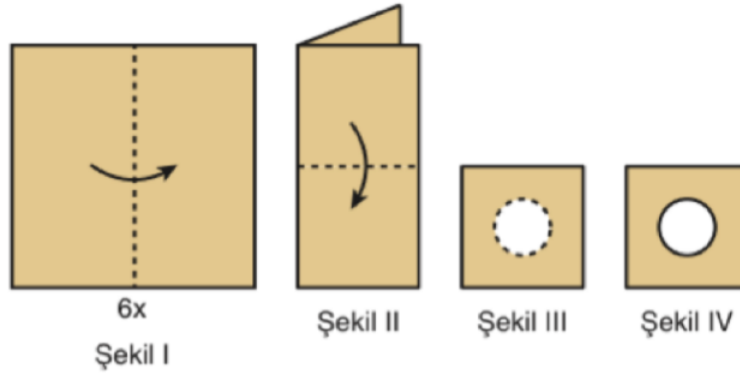
$$9^4 - 8^4 = 3^x - 8^4$$

$$3^x = 3^8$$

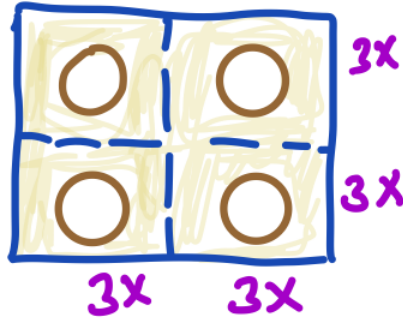
Cevap A

$$x = 8$$

3



Cevap C



$$(6x)^2 - 4 \cdot \pi \left(\frac{2}{\sqrt{\pi}} \right)^2$$

$$36x^2 - 4\pi \frac{4}{\pi}$$

$$36x^2 - 16$$

$$4 \cdot (9x^2 - 4)$$

$$4 \cdot (3x - 2) \cdot (3x + 2)$$

4

$$\frac{\text{Bügra}}{m}$$

$$\frac{\text{Yağ}^{\text{17}}}{n}$$
 $m > n$

$$4 \cdot (m-n)^2 = m^2 - n^2$$

$$4 \cdot (m-n)^2 = (m-n) \cdot (m+n)$$

$$4m - 4n = m + n$$

$$3m = 5n$$

$$\downarrow \quad \downarrow$$

$$5k + 3k = 8k$$

$$k=7 \text{ için } 8 \cdot 7 = 56$$

Cevap C

5

5

$$x-2$$

$$(x^2 - 4x + 4)$$
 birimkare
 $x+3$

$$(x^2 + 6x + 9)$$
 birimkare

$$(x-2)^2 = x^2 - 4x + 4$$

$$(x+3)^2 = x^2 + 6x + 9$$

Cevap C

6

 $112 = t$ olsun.

$$\frac{t^3 + 1}{t + (t-1)^2}$$

~~$$\frac{(t+1) \cdot (t^2 - t + 1)}{t^2 - t + 1}$$~~

$$t+1 = 112+1 \\ = 113$$

Cevap

7



$$\frac{A}{G-2} = ?$$

$$A_{\text{top}} = 4x + 3x^2 + 1$$

$$G_{\text{top}} = 8 + 2x + 8x + 4 = 10x + 12$$

$$\frac{A}{G-2} = \frac{3x^2 + 4x + 1}{10x + 10}$$

$$\frac{(3x+1) \cdot (x+1)}{10 \cdot (x+1)}$$

Cevap D

$$= \frac{3x+1}{10}$$

8

$$\begin{aligned} x^3 + 3xy^2 &= 112 \\ + y^3 + 3x^2y &= 104 \end{aligned}$$

$$(x+y)^3 = 216$$

$$x+y=6$$

$$\begin{aligned} x^3 + 3xy^2 &= 112 \\ - y^3 + 3x^2y &= 104 \end{aligned}$$

$$(x-y)^3 = 8$$

$$x-y=2$$

$$x^2 - y^2 = (x+y) \cdot (x-y) = 12$$

Cevap B

9

$$\frac{2x^2-2}{3x+3}, \frac{x^3-x^2}{x^3+x^2}, \frac{2x-4}{4x+2}$$

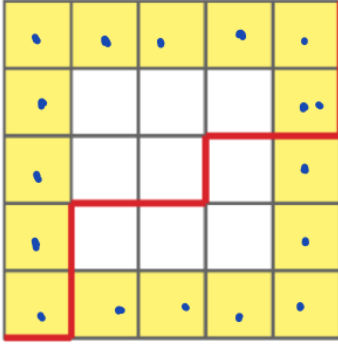
$$\begin{aligned} &\downarrow && \downarrow && \downarrow \\ &\frac{2(x^2-1)}{3(x+1)} && \frac{x^2(x-1)}{x^2(x+1)} && \frac{2(x-2)}{2(2x+1)} \\ &\downarrow && \textcircled{3} && \textcircled{1} \\ &\frac{2(x-1)(x+1)}{x+1} && && \end{aligned}$$

$$\frac{2(x-1)(x+1)}{x+1}$$

2

Cevap A

10



Kare şeklindeki bir kağıt üzerine yandaki gibi özdeş kareler çizilmiştir. Şekilde sarıya boyanmış bölgenin alanı $4x^2 + 16x + 16$ birimkaredir.

Kağıt, gösterilen kırmızı çizgiler boyunca iki parçaya bölünmüştür.

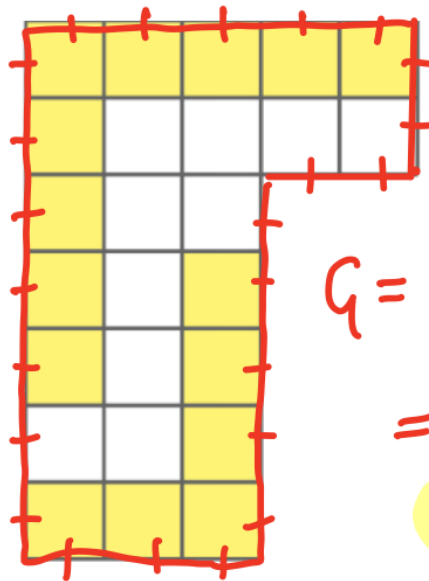
a

16 tane karenin alanı $4x^2 + 16x + 16$ dir.

1 karenin alanı: $\frac{x^2}{4} + x + 1$

$a^2 = \left(\frac{x}{2} + 1\right)^2$

$a = \frac{x}{2} + 1$ karenin bir kenarı



Cevap D

$G = 24 \left(\frac{x}{2} + 1\right)$

$= 12x + 24$

$12 \cdot (x + 2)$

11

$$x - 2\sqrt{x} = 3$$

$$\Rightarrow (x-3)^2 = (2\sqrt{x})^2$$

$$x^2 - 6x + 9 = 4x$$

Cevap C

$$\frac{12x}{x^2 - 6x + 9} = \frac{12x}{4x} = 3$$

12

$$x - \frac{2}{x-3} = 7$$

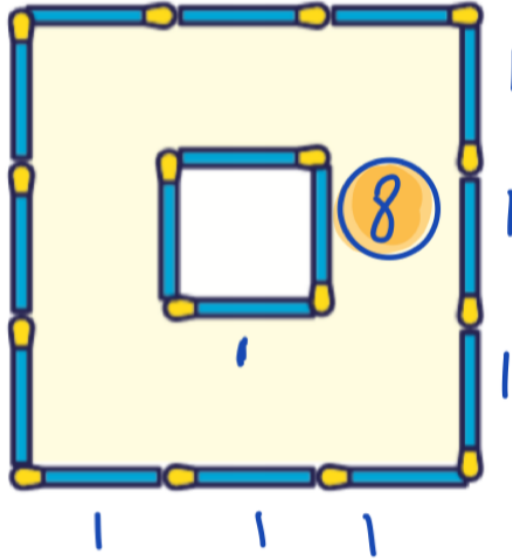
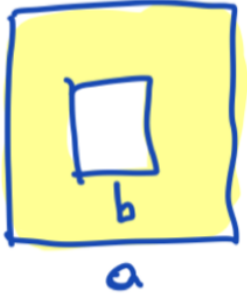
$$\left((x-3) - \frac{2}{x-3} \right)^2 = (4)^2$$

$$(x-3)^2 + \frac{4}{(x-3)^2} - 4 = 16$$

$$(x-3)^2 + \frac{4}{(x-3)^2} = 20$$

Cevap D

13



Cevap C

$$a^2 - b^2 = 36$$

$$(a-b)(a+b) = 36$$

$$\frac{2}{18}$$

$$\begin{array}{r} a-b=2 \\ a+b=18 \\ \hline a=10 \quad b=8 \end{array}$$

$$10 \cdot 4 + 8 \cdot 4 = 72$$

14



$$a+b+c=5$$

$$bc+ac+bc=5$$

$$a^2+b^2+c^2=?$$

Cevap E

$$\underbrace{(a+b+c)^2}_{25} = a^2 + b^2 + c^2 + \underbrace{2(ab+ac+bc)}_{10}$$

$$\Rightarrow a^2 + b^2 + c^2 = 15$$

15

a tane a'dan b tanesi benzer almış.

$$a \cdot b + c^2 + a \cdot b$$

$$a - b = c$$

$$a \cdot b + (a - b)^2 + a \cdot b$$

$$\cancel{a \cdot b} + a^2 + b^2 - \cancel{2ab} + \cancel{a \cdot b}$$

$$= a^2 + b^2$$

Cevap E

16

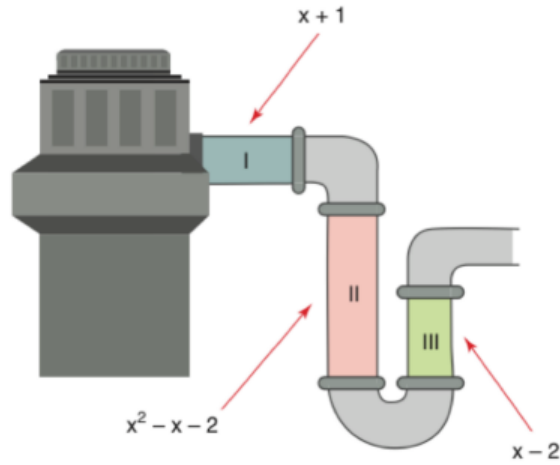
$$3x^3 - 9x^2 + mx - 12$$

$$3x^2(\underline{x-3}) + 4 \cdot (\underline{x-3})$$

$$(x-3) \cdot (3x^2 + 4)$$

Cevap D

17



$$\frac{x^2-x-2}{x+1} + \frac{x^2-x-2}{x-2} = \frac{(x-2)(x+1)}{x+1} + \frac{(x-2)(x+1)}{x-2}$$

Cevap B

$$= x-2 + x+1$$

$$= \boxed{2x-1}$$

1

$$a < 0$$

$$\sqrt{3a^2} + a = \frac{6}{\sqrt{3} + 1}$$

$$-\sqrt{3}a + a = \frac{6}{\sqrt{3} + 1}$$

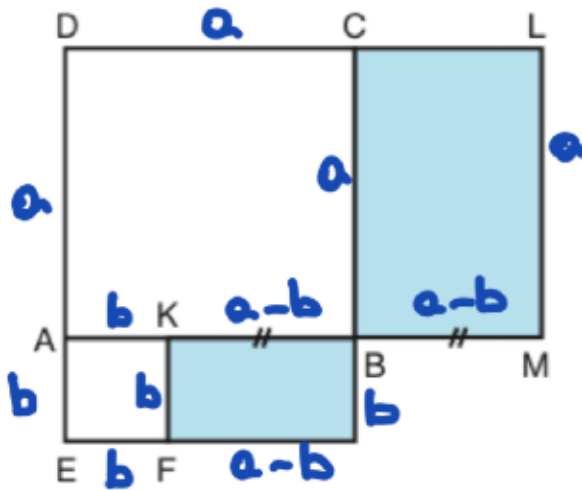
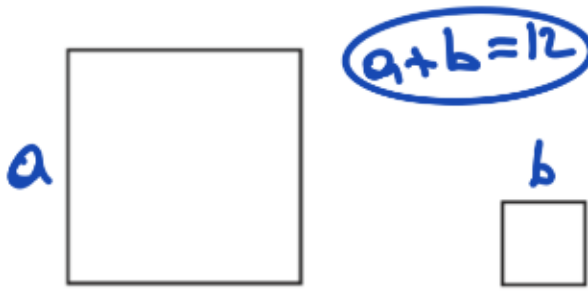
$$a(1 - \sqrt{3}) = \frac{6}{(1 + \sqrt{3})}$$

$$-2a = 6$$

$$a = -3$$

Cevap A

2



$$b \cdot (a-b) + a \cdot (a-b) = 72$$

$$\underbrace{(a-b)}_6 \cdot \underbrace{(a+b)}_{12} = 72$$

$$a+b=12$$

$$a-b=6$$

$$\hline 2a=18$$

$$a=9$$

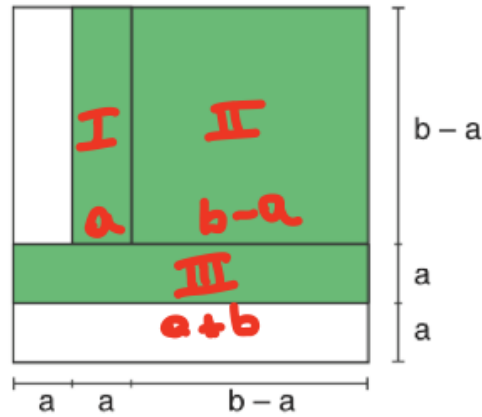
Cevap C

3

a ve b birer reel sayıdır.

 $0 < a < b$ olmak üzere,

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



$$\begin{aligned} & \text{I. } a(b-a) \\ & \text{II. } (b-a)^2 \\ & + \text{III. } a(b+a) \end{aligned}$$

Cevap B

$$\begin{aligned} & \underline{ab - a^2 + a^2 + b^2 - 2ab + ab + a^2} \\ & = \underline{\underline{a^2 + b^2}} \end{aligned}$$

4

$$\frac{a}{b} - \frac{b}{a} = 4$$

$$\frac{a^6 - b^6}{a^3 \cdot b^3} = \left(\frac{a}{b}\right)^3 - \left(\frac{b}{a}\right)^3$$

$$= \underbrace{\left(\frac{a}{b} - \frac{b}{a}\right)}_4 \cdot \underbrace{\left(\left(\frac{a}{b}\right)^2 + \left(\frac{b}{a}\right)^2 + 1\right)}_{19}$$

76

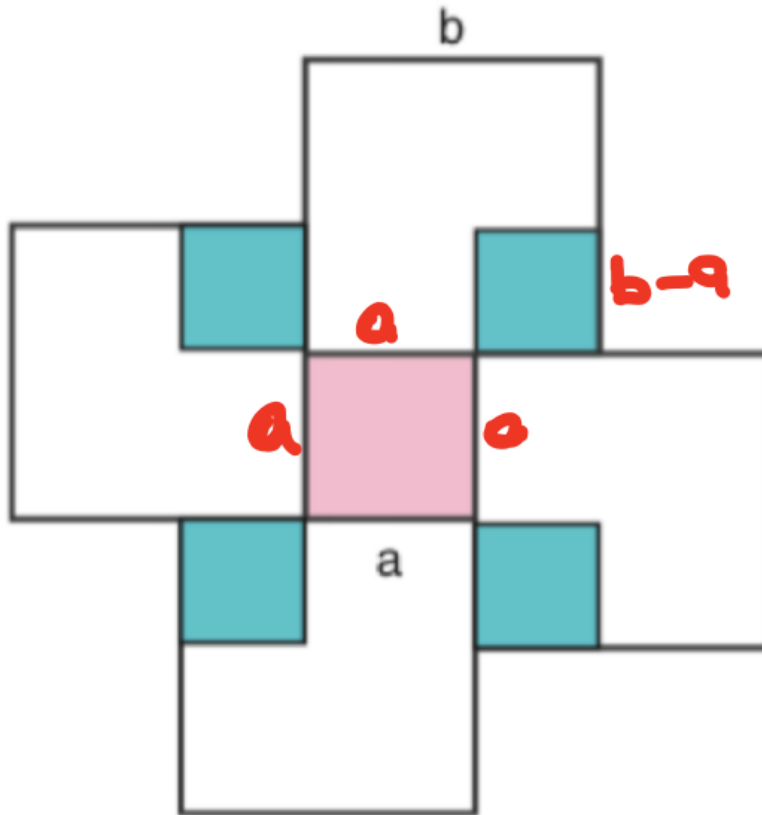
Cevap C

$$\frac{a}{b} - \frac{b}{a} = 4$$

$$\left(\frac{a}{b}\right)^2 + \left(\frac{b}{a}\right)^2 - 2 = 16$$

$$\left(\frac{a}{b}\right)^2 + \left(\frac{b}{a}\right)^2 = 18$$

5



$$\begin{aligned} & a^2 + 4(b-a)^2 \\ &= a^2 + 4(a^2 + b^2 - 2ab) \\ &= 5a^2 + 4b^2 - 8ab \end{aligned}$$

Cevap C

$$\begin{aligned} 6 \quad & (x^2 - 25)^2 - (x - 5)^2 \\ & (x - 5)^2 \cdot (x + 5)^2 - (x - 5)^2 \\ & = (x - 5)^2 \cdot ((x + 5)^2 - 1) \\ & = (x - 5)^2 \cdot (x + 5 - 1) \cdot (x + 5 + 1) \\ & = (x - 5)^2 \cdot (x + 4) \cdot (x + 6) \end{aligned}$$

Cevap A

$$\begin{aligned} 7 \quad & n^2 + 104 = (n + 2)^2 \\ & \cancel{n^2} + 104 = \cancel{n^2} + 4n + 4 \end{aligned}$$

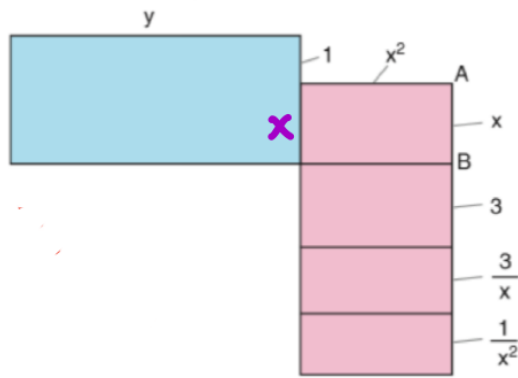
$$4n = 100$$

$$n = 25$$

Cevap D

$$\begin{aligned} 28^2 - 25^2 &= (28 - 25) \cdot (28 + 25) \\ &= 3 \cdot 53 \\ &= 159 \end{aligned}$$

8



$$(x+1) \cdot y = x^2 \cdot (x+3+\frac{3}{x}+\frac{1}{x^2})$$

$$(x+1) \cdot y = x^3 + 3x^2 + 3x + 1$$

$$(x+1) \cdot y = (x+1)^3$$

$$y = (x+1)^2$$

Cevap D

9

Denet: $2, x, x, x^2, x, x, 2$ Sinet: $1, \frac{x}{2}, \frac{x}{2}, 1$

$$\frac{D}{S} = \frac{x^2 + 4x + 4}{x+2} = \frac{(x+2)^2}{x+2}$$

$$= x+2$$

Cevap A

(10)

$$\frac{xy+y^2}{x^2-y^2} - \frac{x}{x-y}$$

$$= \frac{y \cdot \cancel{(x+y)}}{(\cancel{x-y}) \cdot \cancel{(x+y)}} - \frac{x}{x-y}$$

$$= \frac{y}{x-y} - \frac{x}{x-y} \quad \text{Cevap A}$$

$$= \frac{y-x}{x-y} = \textcircled{-1}$$

11

Kaçıncı zıplama	Ne kadar zıplıyor?
1.	Düşülen yüksekliğin $(x - 2)$ katı kadar.
2.	Düşülen yüksekliğin 2 katı kadar.
3.	Düşülen yüksekliğin $(x^2 - 4x + 4)$ 'te biri kadar.

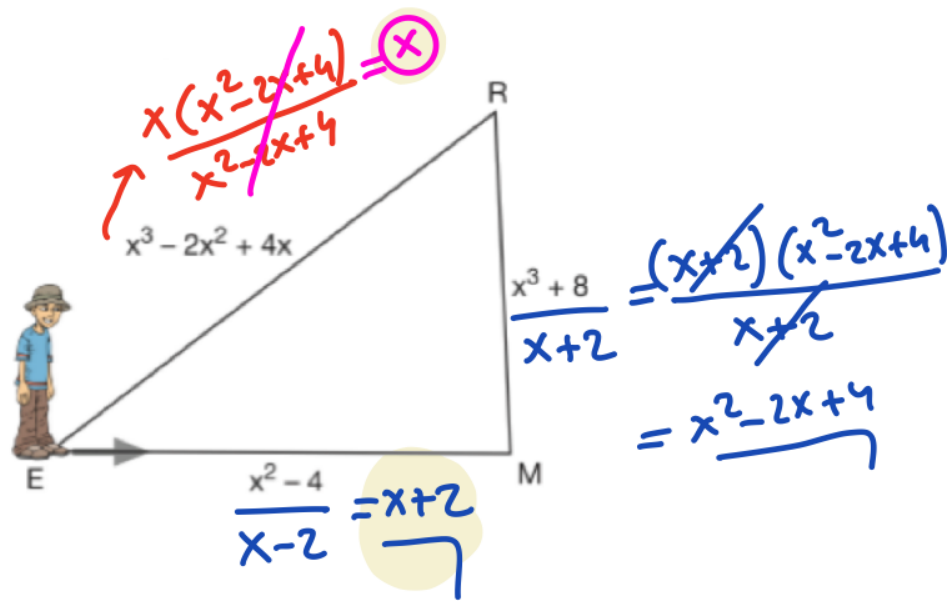
$$\text{I} \quad (x^2 - 4) \cdot (x - 2)$$

$$\text{II} \quad 2(x^2 - 4) \cdot (x - 2)$$

Cevap D

$$\text{III} \quad \frac{2(x^2 - 4)(x - 2)}{x^2 - 4x + 4} = \frac{2(x - 2)^2 \cdot (x + 2)}{(x - 2)^2} = 2x + 4$$

12



Cevap B

13

$$\frac{\frac{1}{x} - \frac{1}{y}}{1 - \frac{x}{y}} : \frac{x + \frac{1}{y}}{y + \frac{1}{x}} = x^m \cdot y^n$$

$$\frac{\frac{y-x}{x \cdot y}}{\frac{y-x}{y}} : \frac{\frac{xy+1}{y}}{\frac{xy+1}{x}} = x^m \cdot y^n$$

$$\frac{\cancel{y-x}}{\cancel{xy}} \cdot \frac{\cancel{y}}{\cancel{y-x}} : \frac{\cancel{xy+1}}{y} \cdot \frac{x}{\cancel{xy+1}} = x^m \cdot y^n$$

Cevap D

$$\frac{1}{x} \cdot \frac{y}{x} = x^m \cdot y^n$$

$$x^{-2} \cdot y = x^m \cdot y^n$$

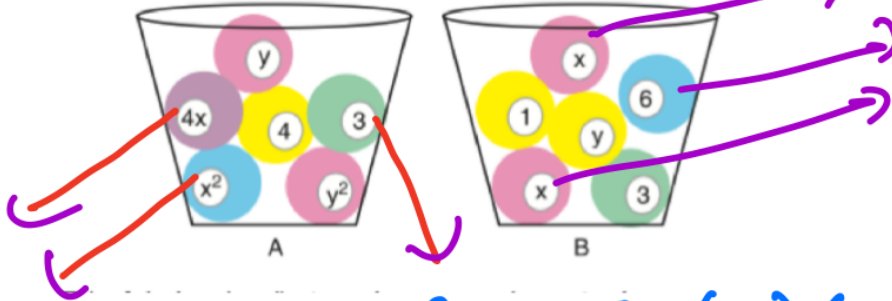
$$m = -2 \quad n = 1$$

$$n - m = 3$$

14

3
EDA

3
SEDA



$$\frac{E}{S} \rightarrow \frac{x^2 + 4x + 3}{2x + 6} = \frac{(x+1) \cdot (x+3)}{2 \cdot (x+3)}$$

Cevap A = $\frac{x+1}{2}$

15

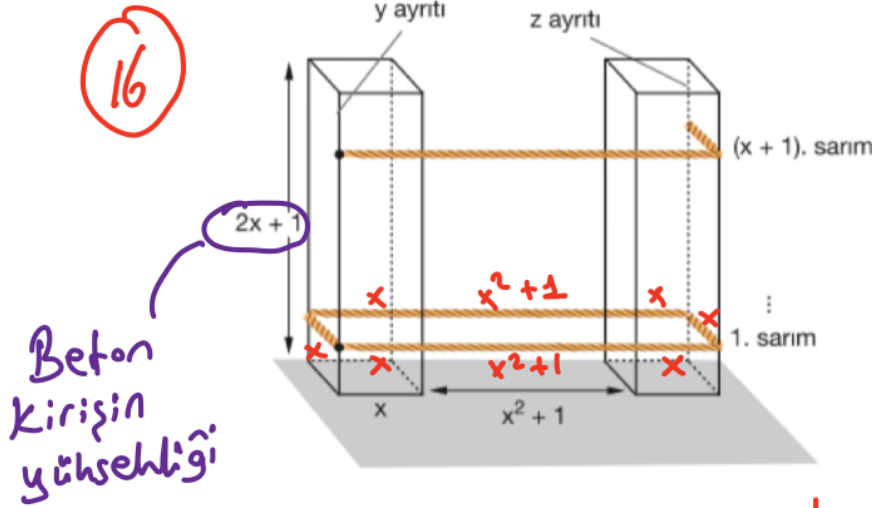
$$2x - \frac{1}{3x} = 6$$

$$\Rightarrow \left(x - \frac{1}{6x}\right)^2 = 3^2$$

$$x^2 - \frac{1}{3} + \frac{1}{36x^2} = 9$$

$$x^2 + \frac{1}{36x^2} = \frac{28}{3}$$

Cevap C



1. sarımda $\rightarrow 2x^2 + 6x + 2$ demir

2. sarımda $\rightarrow 2 \cdot (2x^2 + 6x + 2)$ //

⋮

x. sarımda $\rightarrow x \cdot (2x^2 + 6x + 2)$ //

(x+1). sarımda toplam $\rightarrow x \cdot (2x^2 + 6x + 2) + (x^2 + 3x + 1)$

$$\frac{2x^3 + 7x^2 + 5x + 1}{2x + 1}$$

1 sarımın
yarısı

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

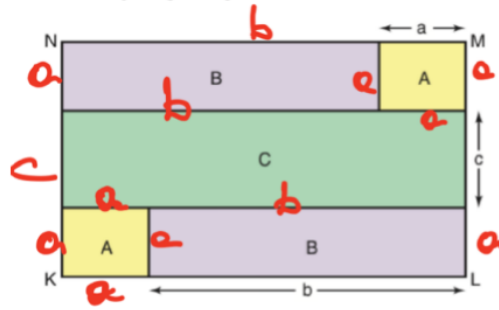
(Polinom
bölmesi de
yapılabilir.)

$$\frac{2x(x^2 + 3x + 1) + (x^2 + 3x + 1)}{2x + 1}$$

Cevap A

$$\frac{(x^2 + 3x + 1) \cdot (2x + 1)}{2x + 1} = x^2 + 3x + 1$$

1



$$\begin{aligned} A &= a^2 \\ B &= ab \\ C &= (a+b) \cdot c \\ D &= (a+b) \cdot (2a+c) \end{aligned}$$

$$\begin{aligned} \text{✓ I. } D+C &= (a+b) \cdot (2a+c) + (a+b) \cdot c \\ &= (a+b) \cdot (2a+2c) \\ &= 2(a+b) \cdot (a+c) \end{aligned}$$

$$\begin{aligned} \text{— II. } D-2B &= (a+b) \cdot (2a+c) - 2ab \\ &= 2a^2 + ac + \cancel{2ab} + bc - \cancel{2ab} \\ &= 2a^2 + ac + bc \\ &\neq c \cdot (a+b) \end{aligned}$$

$$\begin{aligned} \text{✓ III. } D-A-B &= (a+b) \cdot (2a+c) - a^2 - ab \\ &= 2a^2 + ac + 2ab + bc - a^2 - ab \\ &= a^2 + ab + ac + bc \\ &= a(a+b) + c(a+b) \\ &= (a+b) \cdot (a+c) \end{aligned}$$

Cevap: C

2

I
 x^4 birim

II
 x^3 birim

III
 x^2 birim

IV
 $(x + 1)$ birim

V
 x birim

→ a → IV

$$x^4 + x^3 + x^2 + x \rightarrow b$$

I II III ✓

$$x(x^3 + x^2 + x + 1)$$

$$x \cdot (x^2(x+1) + (x+1))$$

$$x \cdot (x+1) \cdot (x^2+1) \rightarrow a$$

Cevap D

3

$$a, a, a, b, b, b, 2$$

$$a^2 + b^2 + 2ab = X$$

$$(a+b)^2 = X$$

$$12^2 = 144 = X$$

$\Rightarrow$ rakamlar toplamı 9 dur.

Cevap A

4

$$X = 105$$

$$2x^3 - 20x^2 + 50x$$

$$2x(x^2 - 10x + 25)$$

$$2x(x-5)^2$$

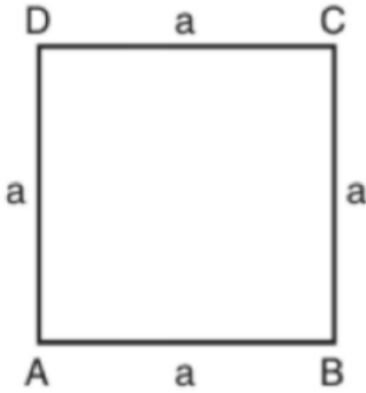
$$2 \cdot 10 \cdot 100^2$$

$$21 \cdot 10^5 =$$

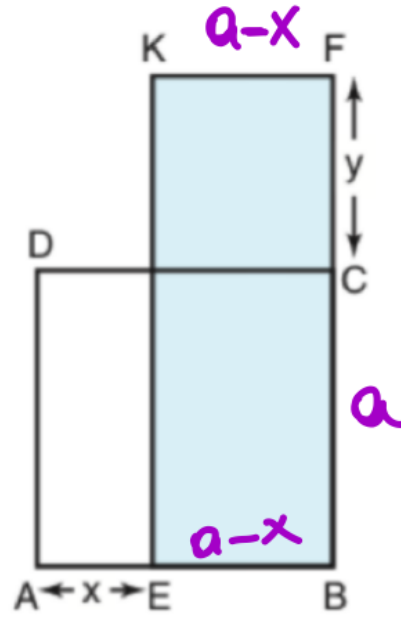
$$2,1 \cdot 10^6$$

Cevap C

5



Şekil I



Şekil II

Cevap C

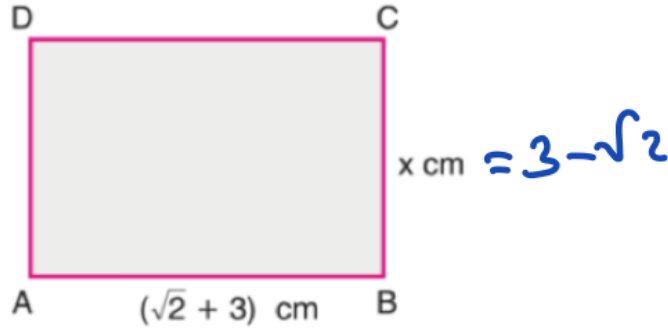
$$(a-x) \cdot (a+y) = a^2 + a - 12$$

$$(a-x) \cdot (a+y) = (a+4) \cdot (a-3)$$

$$x=3 \text{ ve } y=4 \text{ tür.}$$

$$x+y=7$$

6



Çevre ve Alan rasyonel olduğundan $x = 3 - \sqrt{2}$ olmalıdır.

$$a = \text{Çevre} \rightarrow 2 \cdot (\sqrt{2} + 3 + 3 - \sqrt{2}) = 12$$

$$b = \text{Alan} \rightarrow (3 - \sqrt{2}) \cdot (\sqrt{2} + 3) = 9 - 2 = 7$$

$$a - b = 12 - 7 = 5$$

Cevap D

7

Murat
x

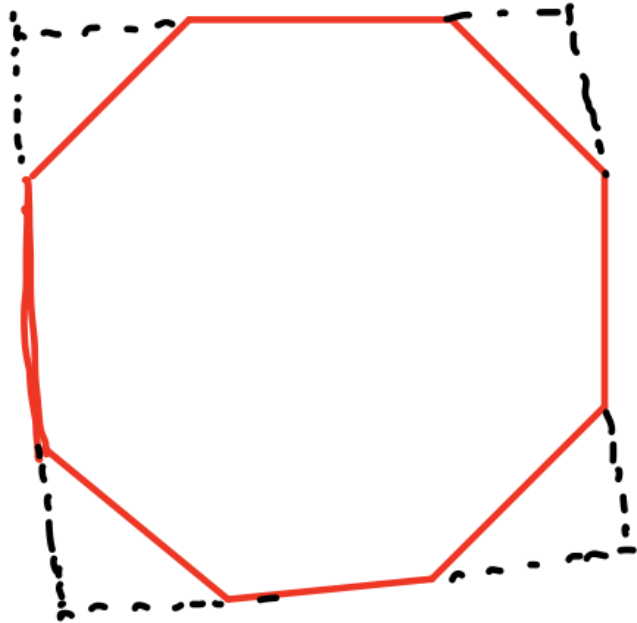
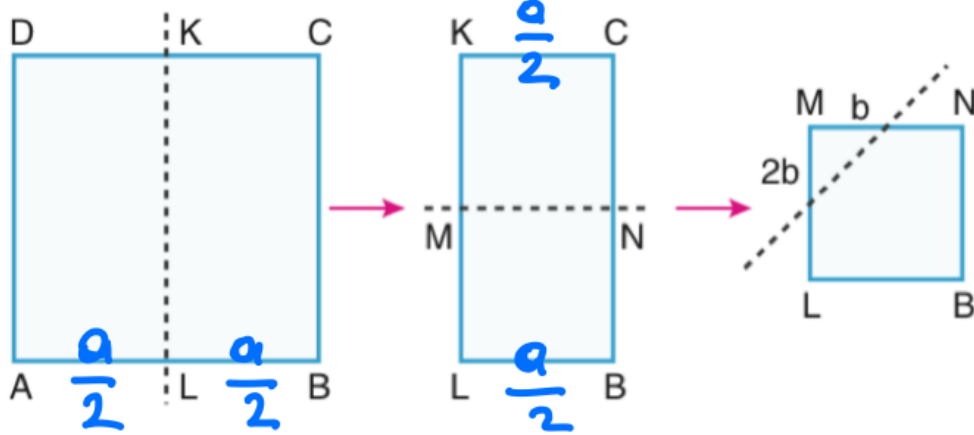
Cevap D

$$(x+11)^2 - x^2$$

$$x^2 + 22x + 121 - x^2$$

$22x + 121 \rightarrow$ Kurtuluş
bu sayıdan 121 çıkarıp
22'ye böldüğünde x
sayısına ulaşır.

8



$$a^2 - 4 \cdot \frac{b \cdot 2b}{2}$$

$$a^2 - 4b^2 = (a-2b) \cdot (a+2b)$$

Cevap A

9

$$\begin{aligned}
 & \left(x - \frac{10}{x-3}\right) \cdot \left(1 - \frac{x^2 - 5x - 2}{x^2 - 4x - 5}\right) \\
 &= \left(\frac{x^2 - 3x - 10}{x-3}\right) \cdot \left(\frac{x^2 - 4x - 5 - x^2 + 5x + 2}{x^2 - 4x - 5}\right) \\
 &= \frac{(x-5)(x+2)}{x-3} \cdot \frac{x-3}{(x-5) \cdot (x+1)} \\
 &= \frac{x+2}{x+1}
 \end{aligned}$$

Cevap B

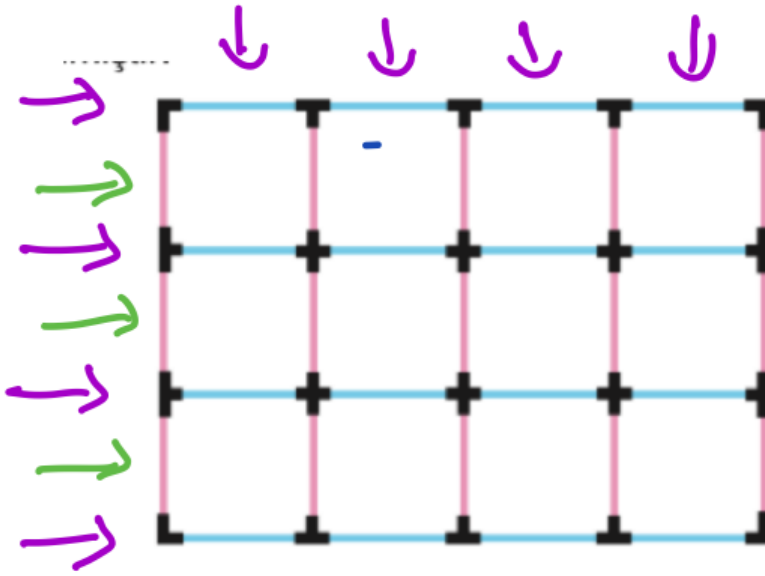
10

$$(x+25)^2 = A$$

$$\begin{aligned}
 (x+20) \cdot (x+30) &= x^2 + 50x + 600 \\
 &= \underline{x^2 + 50x + 625} - 25 \\
 &= (x+25)^2 - 25 \\
 &= A - 25
 \end{aligned}$$

Cevap B

11



Cevap D

$$4 \cdot 4 + 3 \cdot 5 = 31$$

$$\star 4 \cdot (3+1) + 3 \cdot (4+1) = 31$$

$$\rightarrow x \cdot (y+1) + y \cdot (x+1) = 2xy + x + y \text{ dir.}$$

12

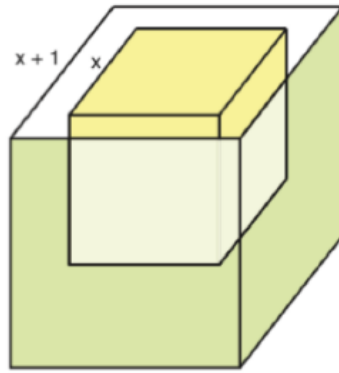
$$\sqrt{\frac{2020 \cdot (2016^2 - 4^2)}{8048}}$$

$$= \sqrt{\frac{2020 \cdot 2012 \cdot 2020}{8048}}$$

$$= \sqrt{\frac{2020^2}{2^2}} = \frac{2020}{2} = 1010$$

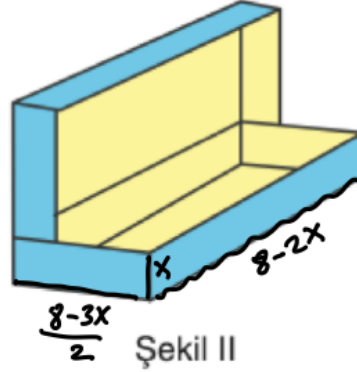
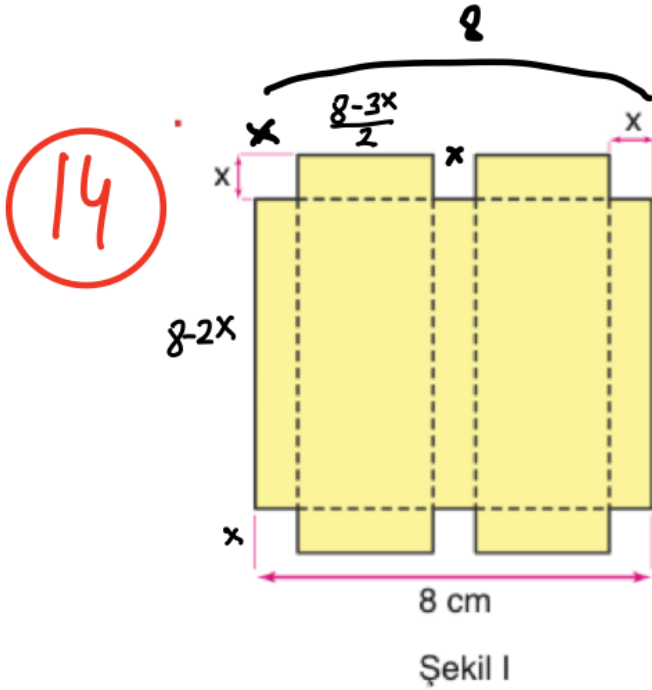
Cevap B

13



$$\begin{aligned} V(x) &= (x+1)^3 - x^3 \Rightarrow V(x) - 7 = (x+1)^3 - x^3 - 7 \\ V(x) - 7 &= \cancel{x^3} + 3x^2 + 3x + 1 - \cancel{x^3} - 7 \\ &= 3x^2 + 3x - 6 \\ &= 3 \cdot (x^2 + x - 2) = 3 \cdot (x+2) \cdot (x-1) \end{aligned}$$

Cevap B



$$2 \cdot \underbrace{\left(\frac{8-3x}{2} \cdot (8-2x) \cdot x \right)}_{\text{Ferdî}} - \underbrace{6x^3}_{\text{Müşüm}}$$

$$= (64 - 40x + 6x^2) \cdot x - 6x^3$$

$$= 64x - 40x^2 + 6x^3 - 6x^3$$

$$= 8x(8-5x)$$

Cevap c

①

$$(a+1) \cdot (b+2) = 7 \text{ ve } a+b=2$$

$$[(a+1) + (b+2)]^2 = X^2 - (a+b+3)^2 = 25$$

$$(a+1)^2 + (b+2)^2 + 2 \cdot \underbrace{(a+1) \cdot (b+2)}_7 = X^2 = 25$$

$$(a+1)^2 + (b+2)^2 = 11$$

Cevap D

2 $\frac{m}{n} = 2m + 1, m \cdot n = 2$

$$\begin{aligned} m^3 - n^3 &= (m - n) \cdot (m^2 + n^2 + mn) \\ &= 4 \cdot (20 + 2) \\ &= 4 \cdot 22 \end{aligned}$$

$\frac{m}{n} = 2m + 1$ $= 88$ Cevap C

$$m = \frac{2mn + n}{4}$$

$$\begin{aligned} \underline{m - n} &= 4 \Rightarrow m^2 + n^2 - 2mn = 16 \\ m^2 + n^2 &= 20 \end{aligned}$$

③

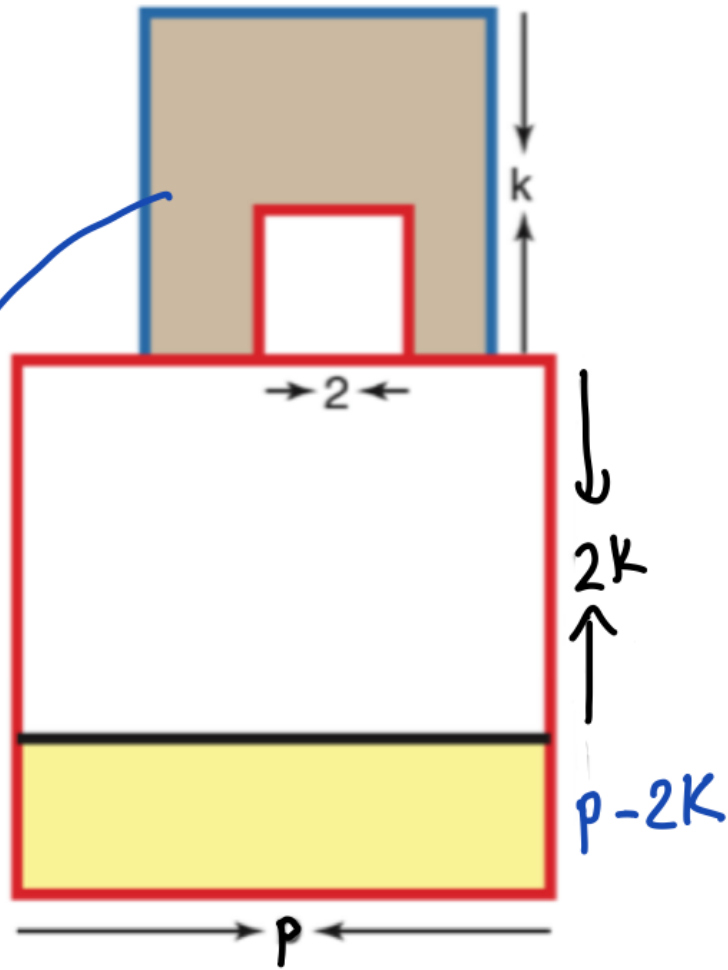
$$(3^2-1) \cdot A = \underbrace{(3^2-1) \cdot (3^2+1)}_{3^4-1} \cdot \underbrace{(3^4+1) \cdot (3^8+1)}_{3^8-1} \cdot \underbrace{(3^{16}+1)}_{3^{32}-1}$$

$$8A = 3^{32} - 1$$

$$3^{32} = 8A + 1$$

Cevap C

4



$$K^2 - 4 + p \cdot (p - 2k)$$

$$K^2 - 4 + p^2 - 2pk$$

$$(K^2 + p^2 - 2pk) - 4$$

$$(K - p)^2 - 2^2$$

$$(K - p - 2) \cdot (K - p + 2)$$

Cevap B

5

$$(x^2+x)^2 - 8(x^2+x) + 12$$

$$x^2+x = t \text{ olsun.}$$

$$t^2 - 8t + 12$$
$$\begin{array}{r} -6 \\ -2 \end{array}$$

$$(t-6) \cdot (t-2)$$

$$(x^2+x-6) \cdot (x^2+x-2)$$

$$(x+3) \cdot (x-2) \cdot (x+2) \cdot (x-1)$$

$x+4$ Çarpan değildir.

Cevap E

⑥

$$x - 2 = a$$

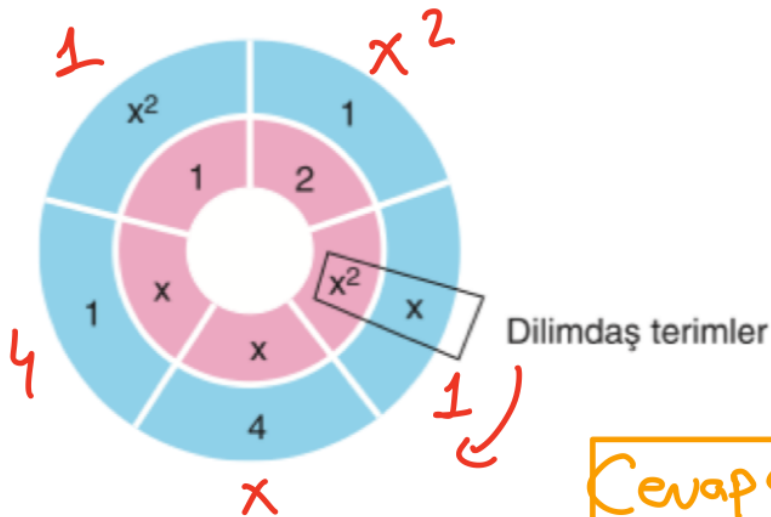
$$x \quad x^2 + 2x + 4 = b$$

Cevap B

$$x^3 - 8 = a \cdot b$$

$$x^3 = a \cdot b + 8 \text{ olur.}$$

⑦



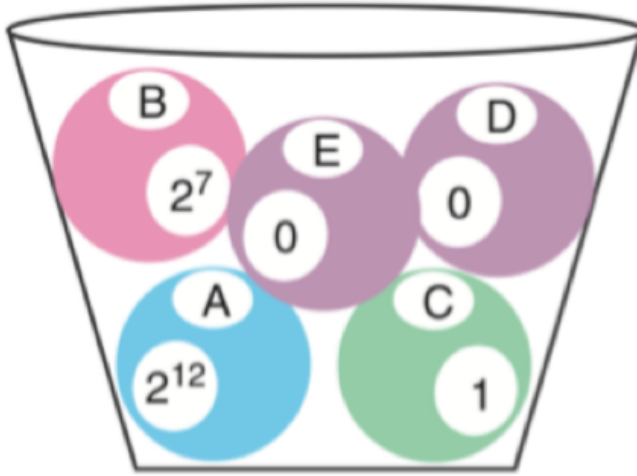
Cevap C

$$x^2 + x^2 + 4x + 1 + 2x^2$$

$$4x^2 + 4x + 1$$

$$(2x+1)^2$$

8



I. D, E, C

$$\rightarrow 0 + 0 + 1 = 1^2 \checkmark$$

II. D, E, B

$$\rightarrow 0 + 0 + 2^7 \text{ tam kare de\u011fil-}$$

III. A, B, C

$$\rightarrow 2^{12} + 2^7 + 1 = (2^6 + 1)^2 \checkmark$$

Cevap C

9

$$\frac{a^3 - 8b^3 + a - 2b}{a^3 + 2a^2b + 4ab^2 + a}$$

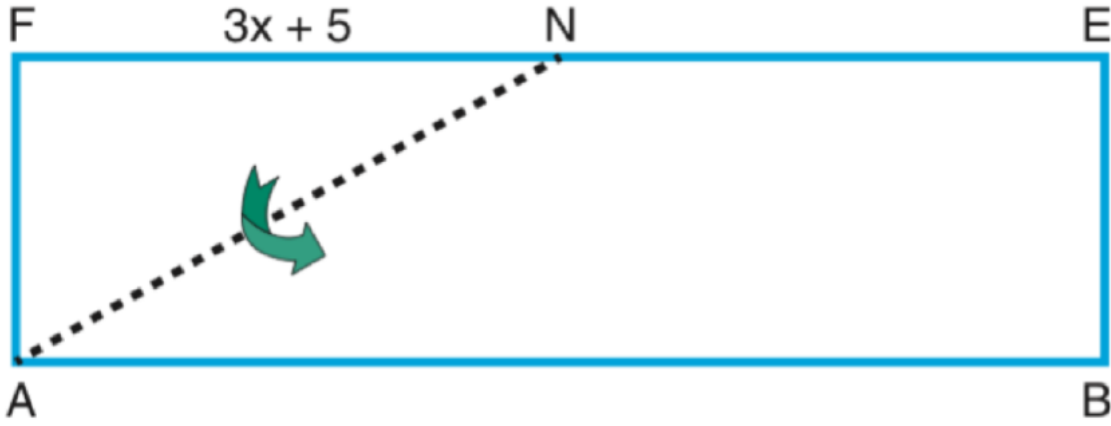
$$= \frac{(a-2b) \cdot (a^2 + 2ab + 4b^2) + (a-2b)}{a(a^2 + 2ab + 4b^2 + 1)}$$

$$= \frac{(a-2b)(a^2 + 2ab + 4b^2 + 1)}{a \cdot (a^2 + 2ab + 4b^2 + 1)}$$

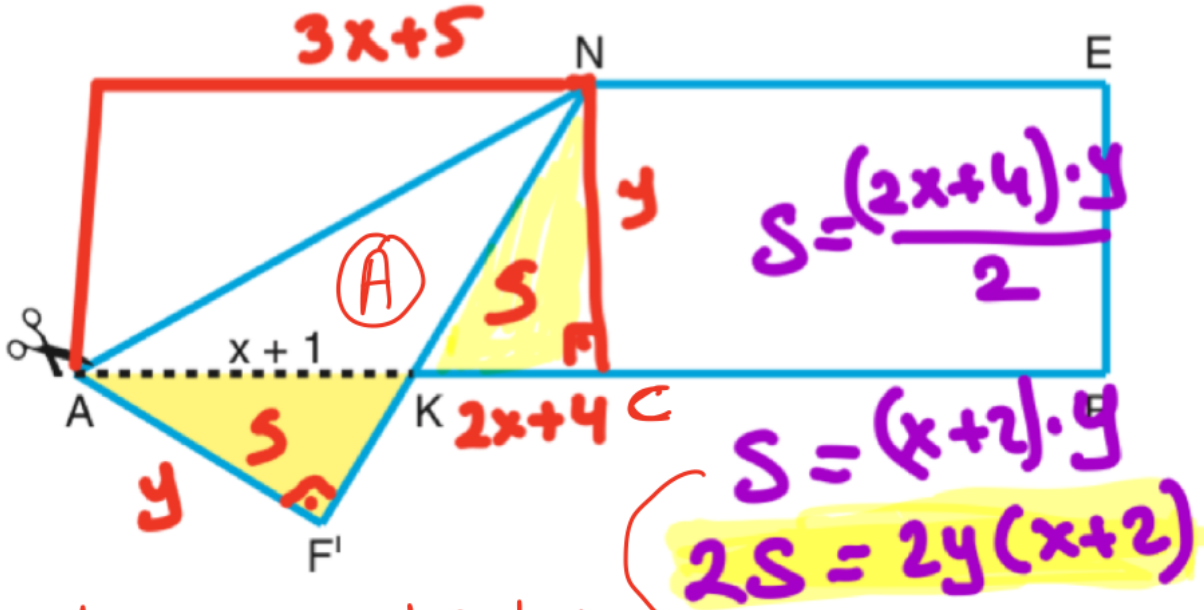
$$= \frac{a-2b}{a}$$

Cevap B

10



$|AK| = (x + 1)$ birim



ΔANC alanı $\Delta AF'N$ alanı
aynı dikdörtgenin
alanının yarısıdır.
Buradan;

$$A(\Delta AF'K) = A(\Delta KCN)$$

olur.

Cevap B

iKi katlı
olduğundan
 $2S$ olur.

11

$$x^2 + x \xrightarrow{(2)} (x^2 + x) \cdot (x+1)$$

$$\xrightarrow{(3)} (x^2 + x) \cdot (x+1) \cdot (x+2)$$

$$\xrightarrow{(4)} \frac{(x^2 + x) \cdot (x+1) \cdot (x+2)}{x^2 + 2x + 1}$$

$$\xrightarrow{(5)} \frac{(x^2 + x) \cdot (x+1) \cdot (x+2)}{(x^2 + 2x + 1) \cdot (x^2 + 2x)}$$

$$= \frac{x(x+1) \cdot (x+1) \cdot (x+2)}{(x+1) \cdot (x+1) \cdot x(x+2)}$$

$$= 1 \quad \text{Cevap A}$$

12

$$\begin{aligned}
 & (x^2-1) \cdot (z^2-y^2) \\
 &= \underline{(x-1)} \cdot (x+1) \cdot (z-y) \cdot \underline{(z+y)}
 \end{aligned}$$

$\underbrace{\hspace{10em}}_{-4}$
 $\underbrace{\hspace{10em}}_{18}$

-72

$$\begin{aligned}
 & xy - z = 11 \\
 & + \quad xz - y = 7 \\
 \hline
 & x(y+z) - (y+z) = 18 \\
 & (y+z) \cdot (x-1) = 18
 \end{aligned}$$

Cevap B

$$\begin{aligned}
 & xz - y = 7 \\
 & - \quad xy + z = -11 \\
 \hline
 & x(z-y) + (z-y) = -4 \\
 & (z-y) \cdot (x+1) = -4
 \end{aligned}$$

13

$$\frac{2029 + (2029-1)^2}{2029^2 - 2028}$$

$$2029 = t$$

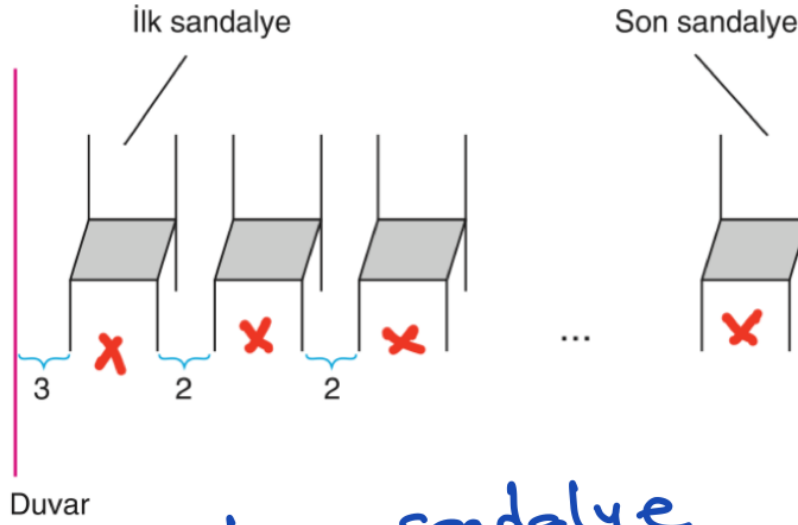
$$\frac{t + (t-1)^2}{t^2 - (t-1)}$$

$$\frac{t + t^2 - 2t + 1}{t^2 - t + 1}$$

$$\frac{t^2 - t + 1}{t^2 - t + 1} = 1$$

Cevap C

14



x tane sandalye
 $(x-1)$ aralık vardır.

Bu durumda;

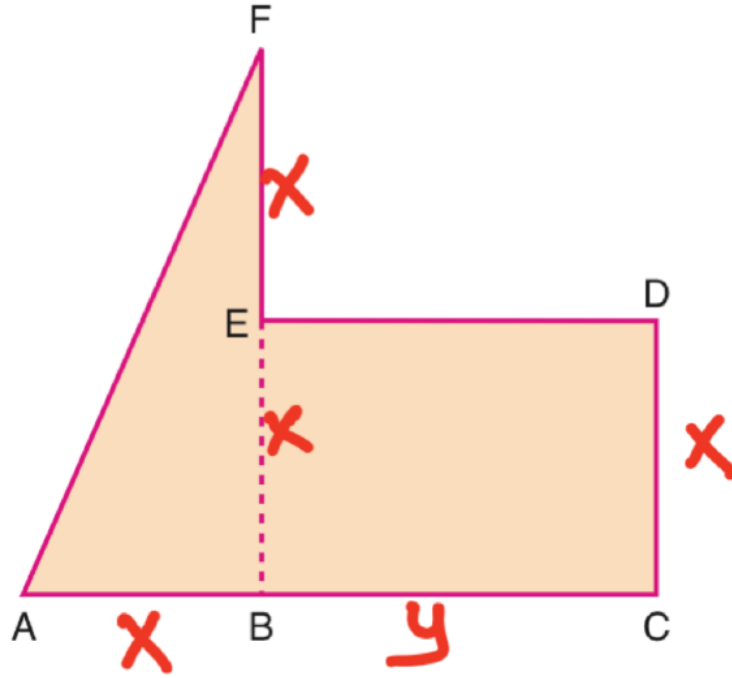
$$x^2 + 2 \cdot (x-1) + 3$$

$$x^2 + 2x + 1$$

$$= (x+1)^2 \text{ olur.}$$

Cevap C

15



Verilen şekilde,

$$|AB| = |CD| = |FE|$$

$$\text{Alan (ACDEF)} = S_{br^2} = \frac{x(2x)}{2} + x \cdot y$$

$$\text{Çevre (BCDE)} = L_{br} = 2(x+y)$$

$$\frac{S}{L} = \frac{x^2 + xy}{2(x+y)} = \frac{x \cdot (x+y)}{2 \cdot (x+y)} = \frac{x}{2}$$

$$\frac{x}{2} = \frac{|AB|}{2}$$

Cevap A

(16)

$$x + y^{-1} = 7 \quad x = 4y$$

$$(x + y^{-1})^2 = 49$$

$$x^2 + y^{-2} + \frac{2x}{y} = 49$$

$$x^2 + y^{-2} + \frac{\cancel{8y}}{\cancel{y}} = 49$$

$$x^2 + y^{-2} = \textcircled{41}$$

Cevap A