

$$1. \frac{2ab - a^2}{a - 2b} = \frac{a(2b - a)}{a - 2b} = -a$$

Cevap: E

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

Cevap: D

$$3. \frac{a^2 + 3ab}{a + 3b} \cdot \frac{a - 4b}{a^2 - 4ab} = \frac{a(a + 3b)}{a + 3b} \cdot \frac{a - 4b}{a(a - 4b)} = 1$$

Cevap: D

$$4. 3a + \frac{5}{b} = 3b + \frac{5}{a}$$

$$3a - 3b = \frac{5}{a} - \frac{5}{b}$$

$$3(a - b) = \frac{5(b - a)}{a \cdot b}$$

$$-3ab = 5$$

$$a \cdot b = -\frac{5}{3}$$

Cevap: B

$$5. \frac{1}{\frac{m}{3m}} + \frac{m^2n - 3m}{3m^2} = \frac{3m + m^2n - 3m}{3m^2} = \frac{m^2n}{3m^2} = \frac{n}{3}$$

Cevap: C

$$6. \frac{y+1}{y-1} + \frac{2x}{x(1-y)} = \frac{y+1}{y-1} - \frac{2x}{x(y-1)}$$

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

$$= \frac{xy - x}{xy - x} = 1 \text{ olur.}$$

Cevap: C

$$7. \left(\frac{x(1+y)}{y+1} + x \right) \left(\frac{x(1-y)}{1-y} + x \right)$$

$$2x : 2x = 1$$

Cevap: C

$$8. \frac{ab - 2a - b + 2}{a - 1} = \frac{a(b - 2) - (b - 2)}{a - 1}$$

$$= \frac{(b - 2)(a - 1)}{a - 1}$$

$$= b - 2 \text{ olur.}$$

Cevap: C

$$9. \frac{z(y-x) + x(y+z)}{x^2 + xy + xz + yz} = \frac{zy - zx + xy + zx}{x(x+y) + z(x+y)}$$

$$= \frac{y(x+z)}{(x+y)(x+z)} = \frac{y}{x+y}$$

Cevap: B

$$10. x^2 + 3xy + 15y$$

$$x(x + 3y) + 15y \quad (x + 3y = 5)$$

$$5x + 15y$$

$$5(x + 3y) = 5 \cdot 5 = 25$$

Cevap: D

$$11. \frac{(3^5)^2 - (5^2)^2}{3^5 - 5^2} \cdot \frac{1}{3^5 + 5^2}$$

$$3^5 \cdot \frac{\cancel{(3^5 - 5^2)} \cancel{(3^5 + 5^2)}}{3^5 - 5^2} \cdot \frac{1}{3^5 + 5^2} = 3^5$$

Cevap: D

$$12. \frac{157^2 - 57^2 + 100 \cdot 107}{3a} = 50$$

$$(157 - 57)(157 + 57) + 100 \cdot 107 = 150a$$

$$100 \cdot 214 + 100 \cdot 107 = 150a$$

$$100(214 + 107) = 150a$$

$$100 \cdot 321 = 150a$$

$$642 = 3a$$

$$214 = a$$

Cevap: B

$$13. ab - b^2 + ac - c^2$$

$$\begin{array}{r} b(a - b) + c(a - c) \\ 8 \quad -8 \end{array}$$

$$8b - 8c = 8(b - c)$$

$$= 8 \cdot -16$$

$$= -128$$

$$a - b = 8$$

$$+ \quad c - a = 8$$

$$c - b = 16$$

$$b - c = -16$$

Cevap: A

$$14. \bullet mn + n^2 = 24 \rightarrow n(m + n) = 24$$

$$\bullet m^2 \cdot n - n^3 = 192$$

$$n(m^2 - n^2) = 192$$

$$\frac{n \cdot (m + n)(m - n)}{24} = 192$$

$$m - n = \frac{192}{24} = 8 \text{ olur.}$$

Cevap: C

$$1. \quad a^2 - b^2 = 13$$

$$(a - b)(a + 3) = 13$$

$$\begin{array}{cc} 1 & 13 \\ a & 7 \\ b & 6 \end{array}$$

$$7.6.2 = 84$$

$$b^2 - c^2 = 32$$

$$6^2 - c^2 = 32$$

$$c^2 = 4$$

$$c = 2$$

Cevap: D

$$2. \quad \frac{2x^2y - 6x}{(xy - 2)^2 - 1} \cdot \frac{x^2y - x}{x^2} \quad (xy - 2)^2 - 1^2 \text{ iki kare farkı}$$

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

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

Cevap: A

$$3. \quad \frac{-1 + x + x^2}{2 + 2x^{-1} - 2x^{-2}} = \frac{(-1 + x + x^2)}{2x^{-2}(x^2 + x - 1)} = \frac{1}{2x^{-2}} = \frac{x^2}{2}$$

Cevap: D

$$4. \quad \left[\frac{a^2 - 9}{a - 3} - \frac{a^2 + 9}{a + 3} \right] : \left[1 - \frac{3}{a + 3} \right]$$

$$\left[\frac{(a - 3)(a + 3) - a^2 + 9}{(a - 3)(a + 3)} \right] : \left[\frac{a + 3 - 3}{a + 3} \right]$$

$$= \left(a + 3 - \frac{a^2 + 9}{a + 3} \right) : \left(\frac{a}{a + 3} \right)$$

$$= \left(\frac{a^2 + 6a + 9 - a^2 - 9}{a + 3} \right) : \left(\frac{a}{a + 3} \right)$$

$$= \left(\frac{6a}{a + 3} \right) : \left(\frac{a}{a + 3} \right) = 6$$

Cevap: B

$$5. \quad \bullet \quad \frac{m - 2}{n + 2} \times \frac{5}{1}$$

$$m - 2 = 58 + 10$$

$$m - 5n = 12$$

$$\begin{array}{r} m - 5n = 12 \\ + \quad m + 5n = 22 \\ \hline 2m = 34 \\ m = 17 \\ n = 1 \end{array} \quad \left. \vphantom{\begin{array}{r} m - 5n = 12 \\ + \quad m + 5n = 22 \\ \hline 2m = 34 \\ m = 17 \\ n = 1 \end{array}} \right\} m + n = 18$$

$$\bullet \quad m^2 - 25n^2 = 264$$

$$m^2 - (5n)^2 = 264$$

$$(m - 5n)(m + 5n) = 264$$

$$12 \cdot (m + 5n) = 264$$

$$m + 5n = 22$$

Cevap: E

$$6. \quad (x - y)(x + y) = 4$$

$$\frac{1}{x + y} + \frac{1}{x - y} = 4 \Rightarrow \frac{x - y + x + y}{(x - y)(x + y)} = 4 \Rightarrow \frac{2x}{4} = 4$$

$$x = 8$$

$$(x - y)(x + y) = 4$$

$$x^2 - y^2 = 4$$

$$8^2 - y^2 = 4 \Rightarrow 64 - 4 = y^2$$

$$y^2 = 60$$

Cevap: B

$$7. \quad \bullet \quad 2^x - 1 = m \Rightarrow 2^x = m + 1$$

$$\bullet \quad 4^x - 2^x + 1$$

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

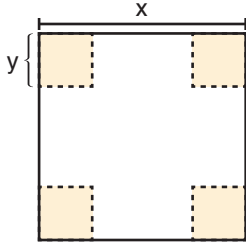
$$= (m + 1)^2 - (m + 1) + 1$$

$$= m^2 + 2m + 1 - m - 1 + 1$$

$$= m^2 + m + 1$$

Cevap: D

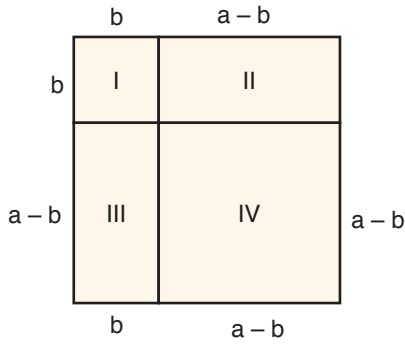
8.



$$\begin{aligned} &\Rightarrow x^2 - y^2 - y^2 - y^2 - y^2 \\ &= x^2 - 4y^2 \\ &= (x - 2y)(x + 2y) \end{aligned}$$

Cevap: A

9.

I. bölge alanı b^2 IV. bölge alanı $(a - b)^2 = a^2 - 2ab + b^2$ I ve IV bölgelerin alanları farkı $a^2 - 2ab + b^2 - b^2$
 $= a^2 - 2ab$ olur.

Cevap: A

10.

$$\frac{\frac{1}{a^2} - \frac{1}{b^2}}{\frac{1}{a} - \frac{1}{b}} = \frac{\frac{b^2 - a^2}{a^2 b^2}}{\frac{b - a}{ab}}$$

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

Cevap: C

11. $(a^2 + a + 2)^2 - (a - 2)^2$

$(a^2 + a + 2 + a - 2)(a^2 + a + 2 - a + 2)$

$(a^2 + 2a) \cdot (a^2 + 4)$

Cevap: A

12. Her bir rafta son durumda $y + z + 2y - z = 3y$ kitap olduğundan x rafta toplam $3xy$ kitap olur.

Cevap: E

$$\begin{aligned}
 1. \quad a + b &= 2ab = 10 \\
 \Rightarrow (a + b = 10)^2 \\
 a^2 + 2ab + b^2 &= 100 \\
 \underbrace{2ab}_{10} \\
 a^2 + b^2 &= 90
 \end{aligned}$$

Cevap: D

$$\begin{aligned}
 2. \quad (x + 3y = 10)^2 \\
 x^2 + 6xy + 9y^2 &= 100 \\
 \underbrace{6xy}_8 \\
 x^2 + 48 + 9y^2 &= 100 \\
 x^2 + 9y^2 &= 52
 \end{aligned}$$

Cevap: C

$$\begin{aligned}
 3. \quad a^3b^2 + a^2b^3 &= 8a^2b^2 \\
 a^2b^2(a + b) &= 8a^2b^2 \\
 (a + b = 8)^2 \\
 \Rightarrow a^2 + 2ab + b^2 &= 64 \quad (a^2 + b^2 = 34) \\
 34 + 2ab &= 64 \\
 2ab &= 30 \\
 ab &= 15
 \end{aligned}$$

Cevap: B

$$\begin{aligned}
 4. \quad (\sqrt{m} - \sqrt{n})^2 &= (2\sqrt{7})^2 \\
 m + n - 2\sqrt{mn} &= 28 \\
 + \quad m + n + 2\sqrt{mn} &= 112 \\
 \hline
 \frac{2}{2} \cdot (m + n) &= \frac{140}{2} \\
 \boxed{m + n = 70}
 \end{aligned}$$

Cevap: B

$$\begin{aligned}
 5. \quad a - b &= 6 \\
 \bullet \quad \frac{1}{a} - \frac{1}{b} &= -1 \Rightarrow \frac{b-a}{ab} = -1 \Rightarrow \underline{b-a} = -ab \\
 -6 &= -ab \Rightarrow ab = 6 \\
 \bullet \quad a^2 + b^2 &= (a-b)^2 + 2ab \\
 a^2 + b^2 &= 6^2 + 2 \cdot 6 \\
 a^2 + b^2 &= 48
 \end{aligned}$$

Cevap: E

$$\begin{aligned}
 6. \quad m^2 + 4n &= n^2 + 4m \\
 m^2 - n^2 &= 4m - 4n \\
 (\cancel{m-n})(m+n) &= 4(\cancel{m-n}) \\
 (m+n = 4)^2 \quad \text{ve} \quad (m-n = a)^2 \\
 m^2 + 2mn + n^2 &= 16 \quad m^2 - 2mn + n^2 = a^2 \\
 \underbrace{-5} \quad \underbrace{-5} \\
 m^2 + n^2 = 26 \quad \Rightarrow \quad 26 + 10 = a^2 \\
 a^2 &= 36 \\
 a &= \mp 6
 \end{aligned}$$

Cevap: A

$$\begin{aligned}
 7. \quad \frac{1}{\frac{x}{x}} + \frac{y}{x^2} &= \frac{x}{y^2} + \frac{1}{\frac{y}{y}} \\
 \frac{x+y}{x^2} &= \frac{x+y}{y^2} \Rightarrow x^2 = y^2 \\
 \boxed{x = -y} \\
 \Rightarrow \frac{x}{y} + \frac{y}{x} &= \frac{-y}{y} + \frac{y}{-y} = -1 - 1 = -2
 \end{aligned}$$

Cevap: D

$$\begin{aligned}
 8. \quad \left(\frac{3}{a} + \frac{a}{3} = 4\right)^2 \\
 \frac{9}{a^2} + 2 \cdot \frac{3}{a} \cdot \frac{a}{3} + \frac{a^2}{9} &= 16 \\
 \frac{9}{a^2} + \frac{a^2}{9} &= 16 - 2 = 14
 \end{aligned}$$

Cevap: C

$$9. \frac{x^2}{x} + \frac{6x}{x} - \frac{3}{x} = \frac{0}{x} \Rightarrow x + 6 - \frac{3}{x} = 0$$

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

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

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

$$x^2 + \frac{9}{x^2} = 36 + 6 = 42$$

Cevap: E

$$10. \bullet \quad m^2 - \frac{1}{m^2} = \underbrace{\left(m - \frac{1}{m}\right)}_a \underbrace{\left(m + \frac{1}{m}\right)}_4 = 4a$$

$$\bullet \quad m + \frac{1}{m} = 4 \quad \text{ve} \quad m - \frac{1}{m} = a$$

$$\left(m + \frac{1}{m} = 4\right)^2 \quad \left(m - \frac{1}{m} = a\right)^2$$

$$m^2 + 2 + \frac{1}{m^2} = 16 \quad m^2 - 2 + \frac{1}{m^2} = a^2$$

$$m^2 + \frac{1}{m^2} = 14 \quad \Rightarrow \quad 14 - 2 = a^2$$

$$a^2 = 12$$

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

$$\Rightarrow 4a = 4 \cdot 2\sqrt{3} = 8\sqrt{3}$$

Cevap: B

$$11. \left(\sqrt{x} - \frac{1}{\sqrt{x}} = \sqrt{3}\right)^2$$

$$x - 2 \cdot \sqrt{x} \cdot \frac{1}{\sqrt{x}} + \frac{1}{x} = 3$$

$$x + \frac{1}{x} = 5$$

$$\Rightarrow \left(x + \frac{1}{x} = 5\right)^2$$

$$x^2 + 2 \cdot x \cdot \frac{1}{x} + \frac{1}{x^2} = 25$$

$$x^2 + \frac{1}{x^2} = 23$$

Cevap: D

$$12. \frac{a\sqrt{a} + a}{\sqrt{a} + a} = \frac{a\sqrt{a} + \sqrt{a} \cdot \sqrt{a}}{\sqrt{a} + a}$$

$$= \frac{\sqrt{a}(a + \sqrt{a})}{\sqrt{a} + a}$$

$$= \sqrt{a}$$

Cevap: E

$$13. \text{I. } a^3 = a \cdot a^2 = a(a-1) = a^2 - 1 = a - 1 - 1 = a - 2$$

Hatalı

$$\text{II. } a^4 = a^2 \cdot a^2 = (a-1)(a-1) = a^2 - 2a + 1$$

$$= a - 1 - 2a + 1$$

$$= -a \Rightarrow \text{Doğru}$$

$$\text{III. } a^5 = a \cdot a^4 = a \cdot a = a^2$$

$$= -a + 1 \Rightarrow \text{Hatalı}$$

Cevap: B

$$14. \frac{a-b}{a\sqrt{b} + b\sqrt{a}} = \frac{1}{2\sqrt{a}}$$

$$\frac{(\sqrt{a} - \sqrt{b})(\sqrt{a} + \sqrt{b})}{\sqrt{a}\sqrt{b}(\sqrt{a} + \sqrt{b})} = \frac{1}{2\sqrt{a}}$$

$$2(\sqrt{a} - \sqrt{b}) = \sqrt{b}$$

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

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

$$4a = 9b \Rightarrow \frac{a}{b} = \frac{9}{4}$$

Cevap: D

$$1. \frac{x^2 - 5x + a}{x^2 - bx + 21} = \frac{x+2}{x-3}$$

$$\Rightarrow a = 2 \cdot (-7) = -14 \quad \Rightarrow a = -14$$

$$-b = -7 + (-3) = -10 \quad \Rightarrow b = 10$$

O halde $a + b = -14 + 10 = -4$ olur.

Cevap: B

$$2. \bullet \frac{m}{m-n} \times \frac{1}{3} \Rightarrow 3m = m - n$$

$$\boxed{n = -2m}$$

$$\bullet \frac{m^2 + 2mn + n^2}{m^2} = \frac{(m+n)^2}{m^2} = \frac{(m-2m)^2}{m^2} = \frac{m^2}{m^2} = 1$$

Cevap: E

$$3. \frac{a^2 - 7ab + 12b^2}{a^2 - 4ab} = 5$$

$$\frac{(a-4b)(a-3b)}{a(a-4b)} = 5$$

$$a - 3b = 5a$$

$$-3b = 4a \Rightarrow \frac{a}{b} = \frac{-3}{4}$$

Cevap: D

$$4. \frac{6x+8}{5x^2-10x} = \frac{A}{5x(x-2)} + \frac{B}{x-2}$$

$$\frac{6x+8}{5x^2-10x} = \frac{Ax-2A+5Bx}{5x^2-10x}$$

$$6x+8 = (A+5B)x - 2A$$

$$\Rightarrow -2A = 8 \quad \Rightarrow \boxed{A = -4}$$

$$\Rightarrow A + 5B = 6 \quad \Rightarrow 5B = 10$$

$$-4 \quad \quad \quad \boxed{B = 2}$$

O halde $A + B = -4 + 2 = -2$

Cevap: A

$$5. (2x - 2y - z = 10)^2$$

$$4x^2 + 4y^2 + z^2 + 2(-4xy - 2xz + 2yz) = 100$$

$$4x^2 + 4y^2 + z^2 - 2 \cdot \underbrace{2(2xy + xz - yz)}_6 = 100$$

$$4x^2 + 4y^2 + z^2 - 24 = 100$$

$$4x^2 + 4y^2 + z^2 = 124$$

Cevap: A

$$6. \underbrace{a^2 + 9b^2 - 6ab}_{(a-3b)^2} - 2a + 6b - 7$$

$$= (a-3b)^2 - 2(a-3b) - 7$$

$$= 4^2 - 2 \cdot 4 - 7$$

$$= 16 - 8 - 7$$

$$= 1$$

Cevap: C

$$7. \frac{5a^2 - b^2}{5^2 a^2 + 2ab} = \frac{1}{5^3}$$

$$5^{a^2 - b^2 - 2a^2 - 2ab} = 5^{-3}$$

$$5^{-b^2 - a^2 - 2ab} = 5^{-3}$$

$$-b^2 - a^2 - 2ab = -3$$

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

$$(a+b)^2 = 3$$

Cevap: E

$$8. \begin{array}{r} a^2 - 3ab - 4b^2 = 0 \\ a \quad \quad b \\ a \quad \quad -4b \end{array}$$

$$(a + b) \cdot (a - 4b) = 0 \Rightarrow a + b = 0 \Rightarrow a = -b$$

$$a - 4b = 0 \Rightarrow a = 4b$$

O halde $a = 4b$ alınır.

$$\Rightarrow \frac{a-b}{a+b} = \frac{4b-b}{4b+b} = \frac{3b}{5b} = \frac{3}{5}$$

Cevap: D

$$9. \frac{a+3b+\frac{2b^2}{a}}{a-\frac{4b^2}{a}} \cdot \left(1 - \frac{3b}{a+b}\right)$$

$$= \frac{a^2+3ab+2b^2}{a^2-4b^2} \cdot \left(\frac{a+b-3b}{a+b}\right)$$

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

Cevap: C

$$10. x^2 + y^2 + 2x + 6y + 15$$

$$\underbrace{x^2 + 2x + 1}_{0} + \underbrace{y^2 + 6y + 9}_{0} + 5$$

$$= (x+1)^2 + (y+3)^2 + 5$$

$$= 5$$

Cevap: E

$$11. \begin{array}{r} a^2 - 6b = -20 \\ + \quad b^2 - 4a = 7 \\ \hline a^2 - 4a + b^2 - 6b = -13 \\ a^2 - 4a + 4 + b^2 - 6b + 9 = 0 \\ (a-2)^2 + (b-3)^2 = 0 \\ a-2=0 \quad b-3=0 \\ a=2 \quad b=3 \\ \Rightarrow a \cdot b = 2 \cdot 3 = 6 \text{ olur.} \end{array}$$

Cevap: E

$$12. \begin{array}{r} x^4 - 29x^2 + 100 \\ x^2 \quad \quad -25 \\ x^2 \quad \quad -4 \\ \hline = (x^2 - 25)(x^2 - 4) \\ = (x-5)(x+5)(x-2)(x+2) \\ \text{I. } x+5 \text{ çarpanıdır.} \\ \text{II. } 2-x = -(x-2) \text{ çarpanıdır.} \\ \text{III. } x^2 - 3x - 10 = (x-5)(x+2) \text{ çarpanıdır.} \end{array}$$

Cevap: E

$$13. \frac{x^3 + x^2 - x - 1}{x^2 + 2x + 1} = \frac{x^2(x+1) - (x+1)}{(x+1)^2}$$

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

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

$$= x-1$$

Cevap: D

$$1. \frac{a^2 - \frac{1}{a}}{a - \frac{1}{a}} \cdot \frac{1 + \frac{1}{a}}{1 + \frac{1}{a} + a}$$

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

$$= 1$$

Cevap: E

$$2. (a^2 - a)^2 - 8(a^2 - a) + 12 \quad (a^2 - a = x)$$

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

$$\begin{array}{r} \\ -6 -2 \end{array}$$

$$\begin{array}{r} (x-6) \\ (a^2 - a - 6) \\ -3 2 \end{array} \quad \begin{array}{r} (x-2) \\ (a^2 - a - 2) \\ -2 1 \end{array}$$

$$(a-3)(a+2)(a-2)(a+1)$$

$$\Rightarrow a-1 \text{ çarpan değildir.}$$

Cevap: C

$$3. \bullet \frac{x^2}{y} + \frac{y^2}{x} = x + y$$

$$\frac{x^3 + y^3}{xy} = x + y$$

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

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

$$\boxed{x^2 + y^2 = 2xy}$$

$$\bullet \frac{x}{y} + \frac{y}{x} = \frac{x^2 + y^2}{xy} = \frac{2xy}{xy} = 2$$

Cevap: C

$$4. \begin{array}{r} x^3 - 3x^2y = 3 \\ + \quad -/ \quad y^3 - 3xy^2 = 67 \\ \hline x^3 - 3x^2y + 3xy^2 - y^3 = -64 \\ (x-y)^3 = (-4)^3 \\ x-y = -4 \end{array}$$

Cevap: E

$$5. 9a^2 - 25b^2 = m$$

$$\underbrace{(3a-5b)}_1 \underbrace{(3a+5b)}_m = m$$

$$\begin{array}{r} 3a - 5b = 1 \\ + \quad 3a + 5b = m \\ \hline 6a = m + 1 \\ a = \frac{m+1}{6} \end{array}$$

Cevap: B

$$6. \bullet \frac{m^2}{n} - \frac{n^2}{m} = n - m$$

$$\frac{m^3 - n^3}{mn} = n - m$$

$$\frac{(m-n)(m^2 + mn + n^2)}{mn} = n - m$$

$$m^2 + mn + n^2 = -mn$$

$$m^2 + n^2 = -2mn$$

$$\bullet \frac{m}{n} + \frac{n}{m} = \frac{m^2 + n^2}{mn} = \frac{-2mn}{mn} = -2 \text{ olur.}$$

Cevap: A

$$\begin{aligned}
7. \quad & \frac{a^3 - 3a^2b - b^2a + 3b^3}{a^2 - 4ab + 3b^2} \\
&= \frac{a^2(a - 3b) - b^2(a - 3b)}{(a - 3b)(a - b)} \\
&= \frac{(a - 3b)(a^2 - b^2)}{(a - 3b)(a - b)} \\
&= \frac{(a + b)(a - b)}{a - b} \\
&= a + b
\end{aligned}$$

Cevap: B

$$\begin{aligned}
8. \quad & x^2 - 10x + m = (x + n)(x - 6) \\
& x^2 - 10x + m = x^2 - 6x + nx - 6n \\
& x^2 - 10x + m = x^2 + (-6 + n)x - 6n \\
\Rightarrow & -10 = -6 + n & m = -6n \\
& n = -4 & m = -6 \cdot -4 \\
& & m = 24 \\
\Rightarrow & m + n = 24 - 4 = 20 \text{ olur.}
\end{aligned}$$

Cevap: C

$$\begin{aligned}
9. \quad & 3^{2a} - 4 \cdot 3^a + 3 = 0 & (3^a = x \text{ olsun}) \\
& (3^a)^2 - 4 \cdot 3^a + 3 = 0 \\
& x^2 - 4x + 3 = 0 \\
& \quad \quad \quad \begin{array}{l} \diagup \quad \diagdown \\ -3 \quad -1 \end{array} \\
& (x - 3)(x - 1) = 0 \\
& (3^a - 3)(3^a - 1) = 0 \\
& 3^a - 3 = 0 & 3^a - 1 = 0 \\
& 3^a = 3^1 & 3^a = 3^0 \\
& a_1 = 1 & a_2 = 0 \\
\Rightarrow & \text{Kökler çarpımı } 1 \cdot 0 = 0 \text{ olur.}
\end{aligned}$$

Cevap: E

$$10. \quad a + \frac{1}{a-2} = 6$$

$$a - 2 + \frac{1}{a-2} = 6 - 2$$

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

$$(a - 2)^2 + 2 \cdot (a - 2) \cdot \frac{1}{a-2} + \frac{1}{(a-2)^2} = 16$$

$$(a - 2)^2 + \frac{1}{(a-2)^2} = 14$$

Cevap: C

TASARI EĞİTİM YAYINLARI

$$11. \quad \bullet \quad \frac{a}{(a)} + \frac{b}{(b)} - \frac{c^2}{ab} = \frac{a^2 + b^2 - c^2}{ab} = ?$$

$$\begin{aligned}
\bullet \quad & a + b + c = 0 \quad \Rightarrow \quad a + b = -c \\
& (a + b)^2 = (-c)^2 \\
& a^2 + 2ab + b^2 = c^2 \\
& a^2 + b^2 = \boxed{c^2 - 2ab}
\end{aligned}$$

$$\begin{aligned}
& \Rightarrow \frac{\overbrace{a^2 + b^2 - c^2}^{c^2 - 2ab}}{ab} = ? \\
& \frac{c^2 - 2ab - c^2}{ab} = \frac{-2ab}{ab} = -2
\end{aligned}$$

Cevap: A

$$12. \frac{a-b-\sqrt{a}+\sqrt{b}}{\sqrt{a}+\sqrt{b}-1} = 3$$

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

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

$$\sqrt{a}-\sqrt{b} = 3$$

$$(\sqrt{a}-\sqrt{b})^2 = 3^2$$

$$a-2\sqrt{ab}+b = 9 \quad (a \cdot b = 4)$$

$$a-2\sqrt{4}+b = 9$$

$$a-4+b = 9$$

$$a+b = 13$$

Cevap: B

$$13. \frac{n-\sqrt{n}}{(n-1)^2} \cdot \frac{n+\sqrt{n}}{n} = 3$$

$$\frac{n^2-n}{(n-1)^2 \cdot n} = 3$$

$$\frac{\cancel{n}(n-1)}{(\cancel{n-1})^2 \cdot \cancel{n}} = 3$$

$$\frac{1}{n-1} = 3 \Rightarrow 1 = 3n - 3$$

$$4 = 3n$$

$$n = \frac{4}{3}$$

Cevap: E