

1. ve 2. soruları aşağıda verilen tabloya göre cevaplayınız.

Answer the questions 1 and 2 by using the following table.

*	1	2	3	4	5
1	5	4	3	2	1
2	4	3	2	1	5
3	3	2	1	5	4
4	2	1	5	4	3
5	1	5	4	3	2

Tabloda * işleminin görevi belirlenmiştir.

The operation of * is established in the table.

ÖRNEK (EXAMPLE)

$$1 * 2 = 4 \text{ ve (and) } 3 * 4 = 5$$

1. $(2 * 4) * x = 5 \Rightarrow x = ?$

- A) 1 B) 2 C) 3 D) 4 E) 5

2. $(((1 * 3) * 5) * 2) = ?$

- A) 5 B) 4 C) 3 D) 2 E) 1

3. m ve n pozitif tam sayılar olmak üzere, $(x - 2)^n \cdot (x + 3)^m < 0$ eşitsizliğinin çözüm kümesi $(-\infty, -3)$ ise, m ve n için aşağıdakilerden hangisi doğrudur?

For the positive integers m and n, if the solution set of the inequality $(x - 2)^n \cdot (x + 3)^m < 0$ is given by the interval $(-\infty, -3)$, then which statement for m and n in the following is true?

- A) m ve n çift (m and n are even)
 B) m ve n tek (m and n are odd)
 C) m tek, n çift (m is odd and n is even)
 D) m çift, n tek (m is even and n is odd)
 E) m ve n tüm pozitif değerleri alır. (m and n are taken positive values)

4. $x \neq -2$ ve $x \neq -\frac{2}{3}$ olmak üzere,

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

denklemini sağlayan x değeri kaçtır?

Let us suppose that $x \neq -2$ and $x \neq -\frac{2}{3}$.

So find the x value that satisfy the

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

- A) -2 B) -1 C) $-\frac{2}{5}$
D) $-\frac{1}{5}$ E) 0

5. $\left. \begin{array}{l} \log_3 x + \log_3 y = 1 \\ \log_2(x - y) = 2 \end{array} \right\} \Rightarrow x + y = ?$

- A) 3 B) 4 C) $2\sqrt{7}$
D) $\sqrt{30}$ E) $4\sqrt{2}$

6. $5^x = 3^y \Rightarrow 3^{\frac{y}{x}} + 5^{\frac{x}{y}} = ?$

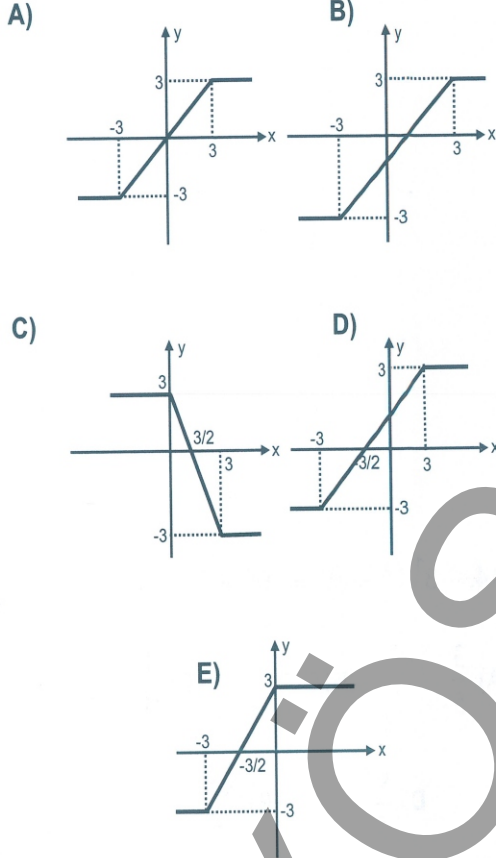
- A) 8 B) 14 C) 28
D) 34 E) 52

7. $2015^2 - 2014^2 = ?$

- A) 2019 B) 4019 C) 4029
D) 4049 E) 1

8. $f(x) = |x+3| - |x|$ fonksiyonunun grafiği aşağıdakilerden hangisidir?

Which one is the graph of the function $f(x) = |x+3| - |x|$?



9. $(x+1).P(x-2) = x^2 + mx + 6$ olduğuna göre, $P(x)$ polinomunun katsayılar toplamı kaçtır?

If the equality $(x+1).P(x-2) = x^2 + mx + 6$ holds, then what is the sum of the coefficients of $P(x)$?

- A) 9 B) 8 C) 7 D) 6 E) 5

10. Soru işaretinin yerine getirilmesi gereken şekli bulunuz.

Find the correct figure that need to be replaced for the question mark.



- A)
- B)
- C)
- D)
- E)

11. $(1 - \frac{a}{a+b}) : (1 - \frac{b}{a+b}) = ?$

- A) $\frac{a+b}{b}$ B) $\frac{a+b}{a}$ C) $\frac{a}{b}$
 D) $\frac{b}{a}$ E) 1

12. $f: \mathbb{R} \rightarrow \mathbb{R}$ $g: \mathbb{R}^2 \rightarrow \mathbb{R}$ olmak üzere,

$$f(x) = \begin{cases} x-1, & x < 0 \\ 3x-2, & x \geq 0 \end{cases} \text{ ve } g(x,y) = \frac{3y-2}{xy+1}$$

fonksiyonları tanımlanıyor. Buna göre, $(f \circ g)(2, -1)$ değeri kaçtır?

For the functions $f(x)$ and $g(x,y)$ in above, what is the value of $(f \circ g)(2, -1)$?

- A) 13 B) 12 C) 10
 D) 7 E) 14

13. $\prod_{n=1}^x a_n = 9^{x!} \Rightarrow a_4 = ?$

- A) 9^{36} B) 9^{24} C) 3^{50} D) 3^{36} E) 3^{24}

14. $3^{1-x} = \sqrt{5} \Rightarrow 9^x = ?$

- A) $\frac{3}{5}$ B) 5 C) $\frac{1}{5}$
 D) $\frac{9}{5}$ E) $\frac{\sqrt{5}}{5}$

15. $\int_0^3 \frac{x}{\sqrt{x+1}} dx = ?$

A) 12

B) 6

C) $\frac{8}{3}$ D) $\frac{4}{3}$ E) $\frac{2}{3}$

16. $x^2 - 8x + m - 1 = 0$ denkleminin kökleri x_1 ve x_2 dir. Ayrıca $x_1 - 2x_2 = 11$ olduğuna göre m kaçtır?

If the roots of $x^2 - 8x + m - 1 = 0$ is x_1 and x_2 , and also if $x_1 - 2x_2 = 11$ is satisfied, then what is the value of m ?

A) 0

B) -1

C) -3

D) -6

E) -8

17. $|z - 2 + 3i| = 4$ eşitliğini sağlayan z karmaşık sayılarının geometrik yerinin denklemini nedir?

What is the geometric equation of z complex number under the rule $|z - 2 + 3i| = 4$?

A) $(x - 2)^2 + (y + 3)^2 = 16$

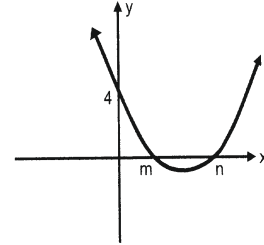
B) $(x - 3)^2 + (y + 2)^2 = 16$

C) $(x - 2)^2 + (y + 3)^2 = 4$

D) $(x + 2)^2 + (y - 3)^2 = 4$

E) $(x + 3)^2 + (y - 2)^2 = 16$

18.



m, n ve a tamsayılar olmak üzere, $y = ax^2 - 5x + c$ parabolünün grafiği yukarıda verilmiştir. Buna göre $m + n + a + c$ toplamı kaçtır?

For any integers m, n and a , the graph of the parabole $y = ax^2 - 5x + c$ is given in above. What is the result of the sum $m + n + a + c$?

A) 9

B) 10

C) 11

D) 12

E) 13

$$19. \lim_{x \rightarrow 1} \frac{\ln(x) - x \ln(x)}{x^3 - 1} = ?$$

- A) -1 B) 0 C) 1
D) 2 E) 3

$$20. \int \frac{dx}{9x^2 + 4} = ?$$

- A) $\frac{1}{6} \arctan\left(\frac{2x}{3}\right) + c$
B) $\arctan\left(\frac{2x}{3}\right) + c$
C) $\frac{1}{6} \arctan\left(\frac{3x}{2}\right) + c$
D) $\frac{1}{6} \operatorname{arccot}\left(\frac{2x}{3}\right) + c$
E) $\frac{1}{9} \arcsin\left(\frac{3x}{2}\right) + c$

$$21. \text{ I. } x \Delta y = xy - y^2$$

$$\text{ II. } x * y = \frac{1}{3x + y}$$

$$\text{ III. } (5 * 3)(7 \Delta 1) = ?$$

I. ve II. eşitliklerde Δ ve $*$ işlemlerinin görevleri belirlenmiştir. Buna göre III. eşitlikte soru işareti yerine aşağıdakilerden hangisi gelmelidir?

The operations Δ and $*$ are established in Equations I and II, respectively. According to these operations, which of the following does stand for the question mark in Equation III ?

- A) 1 B) $\frac{1}{2}$ C) $\frac{1}{3}$
D) $\frac{1}{5}$ E) $\frac{1}{7}$

$$22. 3 - \frac{1 + \frac{1}{3}}{\frac{2}{3}} = ?$$

- A) 4 B) 8 C) 10 D) 1 E) 6

$$23. \lim_{x \rightarrow -\infty} \left(\frac{\sqrt{x^2 - 3x + 1} - x + 2}{5 - 4x} \right) = ?$$

- A) $\frac{5}{2}$ B) $\frac{1}{2}$ C) $\frac{1}{4}$
 D) $-\frac{1}{4}$ E) $-\frac{5}{2}$

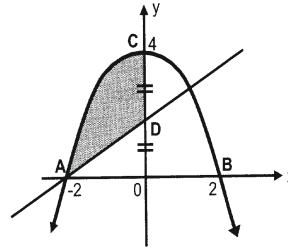
$$25. f(x) = (2 + (1+x)^2)^3 \Rightarrow f'(1) = ?$$

- A) 1 B) 6^4 C) 6^3
 D) $2^4 \cdot 3^2$ E) $2^4 \cdot 3^3$

$$24. \int x^2 f(3x-1) dx = 3x^2 - 4x + 5 \Rightarrow f(1) = ?$$

- A) $-\frac{4}{3}$ B) 0 C) $\frac{2}{3}$
 D) $\frac{4}{3}$ E) $\frac{4}{9}$

26.



Yukarıda $y = 4 - x^2$ parabolünün grafiği çizilmiştir. $|OD| = |DC|$ olduğuna göre, taralı bölgenin alanı kaç br^2 'dir?

The above graph is for the parabole $y = 4 - x^2$. If we have $|OD| = |DC|$, then what is the area of the shaded region?

- A) 4 B) $\frac{10}{3}$ C) 3
 D) $\frac{8}{3}$ E) $\frac{5}{3}$

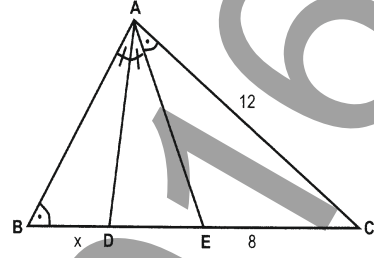
$$27. \frac{2}{1 + \frac{2}{1 - \frac{2}{x}}} = 1 \Rightarrow x = ?$$

- A) -2 B) 1 C) 2
D) -3 E) 3

$$28. \left. \begin{array}{l} 3x + 2y = 17 \\ x - 2y = 3 \end{array} \right\} \Rightarrow x \cdot y = ?$$

- A) 1 B) 2 C) 3
D) 4 E) 5

29.



$$m(\widehat{ABC}) = m(\widehat{EAC}), \quad m(\widehat{BAD}) = m(\widehat{DAE}),$$

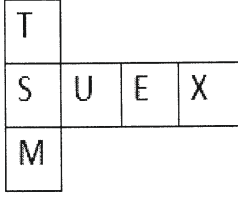
$$|AC| = 12 \text{ cm}, \quad |EC| = 8 \text{ cm}, \quad |BD| = x = ?$$

- A) 6 B) 7 C) 8
D) 9 E) 1

$$30. \quad i^2 = -1 \Rightarrow \frac{i^{2015} + i^{2016}}{i^{2017} + i^{2018}} = ?$$

- A) -1 B) $\frac{1}{2}$ C) i
D) -i E) 1

31.



Yukarıdaki şekil bir küpün açılmış hali ise aşağıdakilerden hangisi bu küpün kapalı hali olabilir?

Assume that the above figure is folded to form a cube. Determine which of the following can be produced?

A)



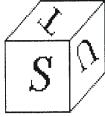
B)



C)



D)



E)



$$32. \quad f(x) = \begin{cases} \frac{2x-3}{4}, & x \geq 0 \\ \frac{1}{x+2}, & -3 < x < 0 \\ \sqrt[3]{x+3}, & x \leq -3 \end{cases}$$

şeklinde tanımlanan f fonksiyonunun süreksiz olduğu kaç tamsayı değeri vardır?

How many discontinuous points are there for the function $f(x)$?

A) 0

B) 1

C) 2

D) 3

E) 4

$$33. \quad \frac{d}{dx} \left(\int_{-1}^2 \left(\frac{x^3+1}{x^2+x+1} \right) dx \right) = ?$$

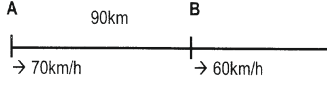
A) $\frac{13}{2}$ B) $\frac{9}{2}$

C) 1

D) 0

E) $-\frac{3}{2}$

34.



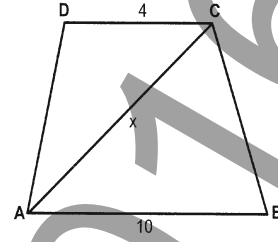
Aralarında 90 km olan iki aracın hızları sırasıyla 60 km/sa ve 70 km/saattir.

A ve B noktalarından aynı anda aynı yönde hareket ettikten kaç saat sonra hızlı olan araç yavaş olan aracın 60 km önüne geçer?

The distance between two cars is 90 km, and their speeds are 70km/h and 60 km/h, respectively. If they move from the points A and B at the same time, then calculate how many hours later the car moved from A will be in front of 60 km from the car moved from B?

- A) 15 B) 12 C) 9
D) 7 E) 4

35.



$[AB] // [DC]$, $|DC| = 4$ cm, $|AB| = 10$ cm, $|AD| = |BC|$, ABCD ikizkenar yamuğu teğetler dörtgeni olduğuna göre, $|AC| = x$ kaç cm dir?

Let us think the above ABCD trapezoidal, and also let $[AB] // [DC]$, $|DC| = 4$ cm, $|AB| = 10$ cm, $|AD| = |BC|$. Then what is the length of $|AC| = x$?

- A) $\sqrt{89}$ B) 9 C) $6\sqrt{2}$
D) 8 E) $2\sqrt{5}$

36. $\sqrt{1903.1909 + 9} = ?$

- A) 1903 B) 1910 C) 1904
D) 1908 E) 1906

37. $\lim_{x \rightarrow \infty} \frac{\sin 3x}{3x} = ?$

- A) 0 B) 2 C) $\frac{1}{3}$ D) 1 E) $\frac{2}{27}$

38. $(1 + \frac{1}{4})(1 + \frac{1}{5}) \dots (1 + \frac{1}{23}) = ?$

- A) 1 B) 2 C) 4 D) 6 E) 8

39. $\sin\left(\cos^{-1}\left(\frac{\sqrt{2}}{2}\right)\right) = ?$

- A) 0 B) $\frac{1}{2}$ C) $\frac{\sqrt{2}}{2}$
D) 1 E) $\frac{3}{2}$

40. $i^2 = -1$ olmak üzere,

$$\left(i + \frac{i}{2}\right) \cdot \left(i + \frac{i}{3}\right) \cdot \left(i + \frac{i}{4}\right) \dots \left(i + \frac{i}{49}\right) = ?$$

- A) 25 B) $25i$ C) -25
D) $-25i$ E) -50

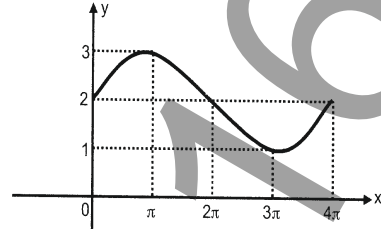
41. $\sqrt{1,44} + \sqrt[3]{0,027} - \sqrt[4]{0,0625} = ?$

- A) 4 B) -1 C) -2
D) 2 E) 1

42. $1 + \frac{2 - \frac{1}{8}}{2 + \frac{1}{8}} = ?$

- A) $\frac{32}{17}$ B) $\frac{3}{2}$ C) 10
D) 1 E) $\frac{3}{17}$

43.



Şekilde $[0, 4\pi]$ aralığında grafiği verilen fonksiyonun denklemi aşağıdakilerden hangisi olabilir?

Which of the following function can be represented by the above graph in the interval $[0, 4\pi]$?

A) $f(x) = 2 + \cos 2x$

B) $f(x) = 1 + \sin 2x$

C) $f(x) = 2 + \sin\left(\frac{x}{2}\right)$

D) $f(x) = 3 - \frac{\sin x}{2}$

E) $f(x) = 3 - \sin 2x$

44. $\sum_{k=2}^{\infty} \left(\frac{1}{k^2-1} \right) = ?$

- A) $\frac{1}{4}$ B) $\frac{1}{2}$ C) $\frac{3}{2}$
 D) $\frac{3}{4}$ E) $\frac{3}{5}$

45.

+	a	b	c
a		5c	
b			9
c	5		

Yukarıdaki toplama tablosunda a, b ve c harfleri pozitif birer sayının yerine kullanılmıştır. Buna göre c kaçtır?

In the above addition table, each letter a, b and c stands for a positive number. Find out what is the value of c ?

- A) 1 B) 2 C) 3
 D) 4 E) 5

46. ve 47. soruları aşağıda verilen tablolara göre cevaplayınız.

Answer the questions 46 and 47 by using the related tables.

46.

	I	II
EKİN	}	9235 2153
NİYE		
YENİ		1532 3592
KİNE		

İNEK = ?

- A) 3215 B) 5321 C) 9351
 D) 1235 E) 512

47.

	I	II
KONYA	}	35128 58361
OYNAK		
ONKAY		51863 35816
KOYUN		

OYUNA = ?

- A) 31826 B) 56182 C) 61358
 D) 51286 E) 31268

48.
$$\left. \begin{array}{l} x+y=12 \\ y+z=21 \\ x+z=9 \end{array} \right\} \Rightarrow x+y+z=?$$

- A) 7 B) 10 C) 21
D) 17 E) -10

49. $A = \begin{bmatrix} 2 & -1 \\ 0 & 3 \end{bmatrix}$, $B = \begin{bmatrix} 4 & -2 \\ 1 & 3 \end{bmatrix}$ matrisleri veriliyor. Buna göre $\det(A \cdot B) = ?$

For the above matrices A and B , what is the determinant of A product B ?

- A) 84 B) 81 C) 80
D) 78 E) 75

50. $\lim_{x \rightarrow 0} \frac{x \cdot \sin 2x}{\tan^2 3x} = ?$

- A) $\frac{2}{3}$ B) $\frac{2}{9}$ C) $\frac{1}{3}$
D) $\frac{4}{27}$ E) $\frac{2}{27}$

51. $\frac{2^4 + 2^5 + 2^6}{2^2 + 2^3 + 2^4} = ?$

- A) 2 B) 5 C) 4
D) 8 E) 12

52. $\frac{1}{4} + \left[\frac{1}{2} : \left(\frac{5}{6} - \frac{2}{3} \right) \right] = ?$

- A) $\frac{5}{2}$ B) $\frac{7}{4}$ C) $\frac{13}{4}$
 D) $\frac{15}{4}$ E) 5

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

- A) $a-b$ B) $a+b$ C) $a^2 + b^2$
 D) 21 E) 20

54. $x^2 - 3x - 3 = 0$ denkleminin kökleri

x_1 ve x_2 ise $\frac{1}{3+x_1} + \frac{1}{3+x_2} = ?$

If the roots of the equation

$x^2 - 3x - 3 = 0$ are x_1 and x_2 ,

then $\frac{1}{3+x_1} + \frac{1}{3+x_2} = ?$

- A) -1 B) 3 C) $\frac{3}{5}$
 D) 2 E) $\frac{2}{3}$

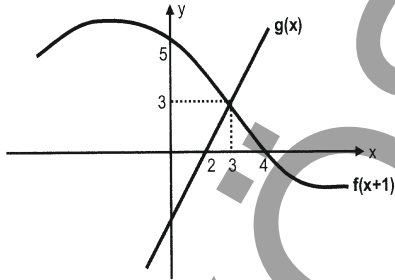
55. $\int \frac{\cos x}{1 - \sin x} d(\sin x) = ?$

- A) $\sin x - x + c$
 B) $-x - \sin x + c$
 C) $x + \sin x + c$
 D) $x - \cos x + c$
 E) $\sin x - \cos x + c$

56. $\lim_{x \rightarrow -\infty} \frac{3^{x+1} + 5^x}{3^x - 5^{x+1}} = ?$

- A) 3 B) -1 C) 0
D) 1 E) $-\frac{1}{5}$

57.



Buna göre $f(4) + g^{-1}(0) = ?$

Find out what is $f(4) + g^{-1}(0) = ?$

- A) 1 B) 2 C) 3
D) 4 E) 5

58. $[-7 - 3(-5) - 4] = ?$

- A) 26 B) -18 C) -12
D) 4 E) 12

59. $\begin{bmatrix} 3 & -2 \\ 1 & 4 \end{bmatrix} \cdot K = \begin{bmatrix} -1 \\ 9 \end{bmatrix}$ olduğuna göre K^T matrisi aşağıdakilerden hangisidir? ($K^T := K$ matrisinin transpozesi)

By considering this above matrix equality, find out the transpose of the matrix K ?

- A) $\begin{bmatrix} 2 \\ 1 \end{bmatrix}$ B) $[2 \ 1]$ C) $\begin{bmatrix} 1 \\ 2 \end{bmatrix}$
D) $[1 \ 2]$ E) $\begin{bmatrix} -1 \\ -2 \end{bmatrix}$

60. $m \in \mathbb{R}$ olmak üzere
 $y = x^2 - 8mx + 4m + 3$ parabolünün
 tepe noktalarının geometrik yer
 denklemi aşağıdakilerden hangisidir?

What is the geometric position
 equation for the peaks of the
 paraboles $y = x^2 - 8mx + 4m + 3$, where
 $m \in \mathbb{R}$?

- A) $y = -x^2 + 3$
 B) $y = x^2 - x - 3$
 C) $y = -x^2 + x + 3$
 D) $y = x^2 - 4x + 8$
 E) $y = x^2 + 4x - 8$

61., 62., 63. ve 64. soruları aşağıda verilen
 tablolara göre cevaplayınız.

Answer the questions 61, 62, 63 and 64 by
 using the following two tables.

\oplus	a	b	c	d	e	\odot	a	b	c	d	e
a	b	a	c	d	e	a	c	a	b	d	e
b	c	e	a	b	d	b	d	e	c	b	a
c	d	c	b	e	a	c	a	b	d	e	c
d	a	d	e	c	b	d	b	c	e	a	d
e	e	b	d	a	c	e	e	d	a	c	b

61. Aşağıdakilerden hangisi doğrudur?

Which one of the following is correct?

- A) $a \odot (b \oplus c) = (a \odot b) \oplus (a \odot c)$
 B) $(a \oplus b) \odot c = (a \odot c) \oplus (b \odot c)$
 C) $(a \odot a) \oplus a = a \odot (a \oplus a)$
 D) $(d \oplus d) \oplus d = d \oplus (d \oplus d)$
 E) $(e \odot e) \odot e = e \odot (e \odot e)$

62.
$$\left. \begin{array}{l} (x \oplus a) \odot e = (c \oplus d) \odot e \\ (a \odot b) \oplus y = (e \odot d) \oplus b \end{array} \right\} \Rightarrow x \oplus y = ?$$

- A) a B) b C) c D) d E) e

63.
$$\left. \begin{array}{l} (e \odot e) \odot (e \odot e) = x \\ (d \oplus d) \oplus (d \oplus d) = y \end{array} \right\} \Rightarrow x \odot y = ?$$

- A) a B) b C) c D) d E) e

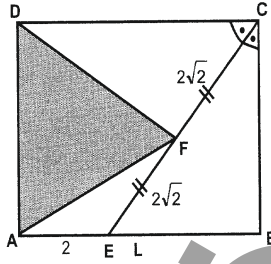
$$64. \left. \begin{array}{l} (a \odot e) \oplus (e \odot a) = x \\ (d \oplus b) \odot (b \oplus d) = y \end{array} \right\} \Rightarrow x \oplus y = ?$$

- A) a B) b C) c
D) d E) e

$$66. \frac{1}{2} + \left[\frac{5}{12} : \left(\frac{5}{6} - \frac{2}{3} \right) \right] = ?$$

- A) 3 B) 2 C) -2
D) -3 E) 1

65.



ABCD dikdörtgeni için, $[CE]$ bir açıortay, $|CF| = |FE| = 2\sqrt{2}$ cm ve $|AE| = 2$ cm olduğuna göre, ADF üçgenin alanını bulunuz?

For the rectangle $ABCD$, let $[CE]$ be a bisector, and let $|CF| = |FE| = 2\sqrt{2}$ cm, $|AE| = 2$ cm. Then find the area of shaded triangle ADF ?

- A) 6 B) 8 C) 9
D) 10 E) 12

67., 68., 69. ve 70. sorular aşağıda verilen bilgilerden hareketle cevaplanacaktır.

Answer the questions 67., 68, 69. and 70. by using the following informations.

$$a \nabla b = b - ab$$

$$a \blacktriangle b = a - ab$$

67. $(2 \nabla 3) \blacktriangle (3 \nabla 2) = ?$

- A) 15 B) 3 C) -3 D) 4 E) -15

68. $(-1 \blacktriangle 2) \nabla (3 \blacktriangle -1) = ?$

- A) 0 B) 2 C) 3 D) 4 E) 5

69. $x \blacktriangle 2 = 2 \blacktriangle x \Rightarrow x = ?$

- A) 1 B) 2 C) 3 D) 4 E) 5

70. $y \nabla 2 = 2 \nabla y \Rightarrow y = ?$

- A) 1 B) 2 C) 3 D) 4 E) 5

Aşağıdaki soruda, I. Gruptaki kümelerin şekilleri birer rakamla gösterilerek II. Gruptaki sayılar elde edilmiştir. Soru işaretiyle belirtilen kümenin hangi sayıyla gösterildiğini bulunuz.

In the following question, each figure in group I has been coded with a specific numeral, and so the numbers in group II are obtained. By considering this idea, find the correct number that corresponds to the figures indicated by question mark.

71. I _____ II _____



173 743 837
178 814

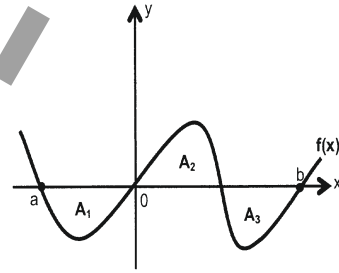
○△△ = ?

- A) 347 B) 174 C) 487
D) 371 E) 143

72. $3^{2a-3} = 9 \Rightarrow 9^a = ?$

- A) 243 B) 81 C) 27
D) 3 E) 9

73.



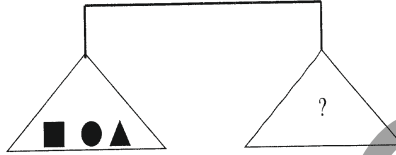
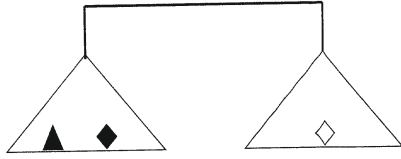
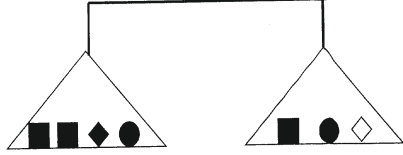
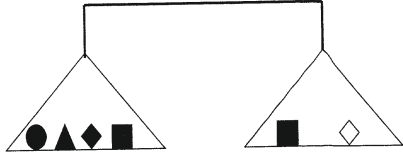
Let $A_1 = \frac{3}{2}m^2$, $A_2 = \frac{7}{2}m^2$ and $A_3 = \frac{1}{2}m^2$.

Then what is the result of

$$\int_a^b f(x) dx = ?$$

- A) 1 B) $\frac{3}{2}$ C) 2
D) $\frac{5}{2}$ E) $\frac{7}{2}$

74.



Yukarıdaki terazilerin dördü de dengede olduğuna göre IV. terazideki soru işareti aşağıdakilerden hangisini göstermektedir?

Assume that all four scales are in balance in the above figure. As a result of this calculate the question mark in the fourth scale?

- A) ●●◆◇
 B) ●◆
 C) ◇■▲
 D) ●●▲▲
 E) ◇▲▲

$$75. \left. \begin{array}{l} f(x) = x^3 - 2 \\ g(x) = \frac{(x+1)}{3} \end{array} \right\} \Rightarrow (f^{-1} \circ g)(74) = ?$$

- A) -1 B) 0 C) 1
 D) 2 E) 3

$$76. \int_0^2 \frac{x}{x+2} dx = ?$$

- A) $1 - 2\ln 2$ B) $2\ln 2$ C) $2 + \ln 2$
 D) $2 - 2\ln 2$ E) $2 - \ln 2$

77., 78. ve 79. sorular aşağıda verilen bilgilerden hareketle cevaplayınız.

\oplus : verilen sayıya 4 ekleyip -2 ile çarpma.

\otimes : verilen sayının -2 ile çarpımına 4 ekleme.

Answer the questions 77, 78 and 79 by using the following operations.

The operation \oplus : first add 4 and then multiply -2 to the given number.

The operation \otimes : first multiply -2 and then add 4 to the given number.

77. 1 sayısına önce \oplus işlemi bir defa ve sonrada çıkan sonuca \otimes işlemi bir defa uygulanırsa sonuç ne olur?

First apply \oplus ones to the number 1 and then apply \otimes ones to the result. What is the final result?

- A) 8 B) 17 C) 10 D) 20 E) 24

78. Hangi sayıya önce \otimes işlemi daha sonrada \oplus işlemi uygulanırsa sonuç 16 çıkar.

For which number we get the result 16 if we first apply \otimes ones and then apply \oplus ones again?

- A) 8 B) 9 C) 10 D) 11 E) 12

79. $2x$ sayısına önce \oplus işlemi bir defa ve sonrada çıkan sonuca \otimes işlemi bir defa uygulanırsa sonuç ne olur?

What will be the result if we first apply the operation \oplus ones and then apply the operation \otimes ones to the number $2x$?

- A) $2x$ B) $8x$ C) $8x + 20$
D) $x - 20$ E) $-8x$

80. $4 + 8 + 12 + \dots + 40 = ?$

- A) 110 B) 220 C) 440
D) 630 E) 820

TEST BİTTİ.
CEVAPLARINIZI KONTROL EDİNİZ.

END OF TEST.
PLEASE CHECK YOUR ANSWERS