

1. $(\frac{1}{2} + \frac{1}{3}) - (\frac{1}{3} - \frac{1}{4} + \frac{1}{2}) = ?$

- A) $\frac{1}{2}$ B) $\frac{5}{6}$ C) $\frac{1}{4}$ D) $\frac{1}{6}$ E) $\frac{1}{12}$

2. $\frac{1}{4} - \frac{3}{2} : \frac{2}{3} + \frac{5}{8} = ?$

- A) $-\frac{5}{4}$ B) $-\frac{7}{8}$ C) $\frac{5}{1}$ D) $-\frac{11}{8}$ E) $\frac{5}{6}$

3. $\frac{0,13}{1,3} + \frac{0,53}{5,3} - \frac{1,7}{3,4} = ?$

- A) $\frac{39}{2}$ B) $\frac{21}{2}$ C) $-\frac{7}{10}$ D) $\frac{5}{2}$ E) $-\frac{3}{10}$

4. $a = \sqrt{3} + 1$ $b = \sqrt{3} - 1$ \Rightarrow $\frac{a}{b} + \frac{b}{a} = ?$

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

5. $\sqrt{(-3)^2} - \sqrt[3]{(-2)^3} + \sqrt{49} = ?$

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

6. $A = [-2, 4)$, $B = (1, 8]$ $\Rightarrow A \cap B = ?$

- A) $[-2, 8]$ B) $(1, 4)$ C) $[-2, 1)$ D) $(1, 4)$ E) $[4, 8]$

7. $(1 - \sqrt{x})(1 + \sqrt{x})(1 + x)(1 + x^2) + 15 = 0$
 $\Rightarrow x^?$ in alacağı değerler çarpımı kaçtır?

If $(1 - \sqrt{x})(1 + \sqrt{x})(1 + x)(1 + x^2) + 15 = 0$
 then what is the multiplication of values of x ?

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

8. f sabit fonksiyonu ve $f(x) = \frac{(a-2)x+4}{2x+8} \Rightarrow a = ?$

If f is a constant function and $f(x) = \frac{(a-2)x+4}{2x+8}$ then $a = ?$

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

9. $f(x) = 2^x$ ise

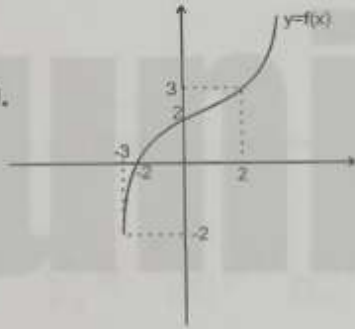
$f(x+3)$ ün $f(x)$ cinsinden değeri nedir?

If $f(x) = 2^x$

, find definition of $f(x+3)$ as a function of $f(x)$.

- A) $3f(x)$ B) $8f(x)$ C) $4f(x)$ D) $6f(x)$ E) $f(x)+3$

10.



$$\frac{f(0) + f(2) - f^{-1}(2)}{f^{-1}(0) + f^{-1}(-2)} = ?$$

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

11. $x^2 - x - 5 = 0$ denkleminin kökleri

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

Let x_1 and x_2 be the roots of $x^2 - x - 5 = 0$.

solve $\frac{x_1}{x_2} + \frac{x_2}{x_1} = ?$

- A) $-\frac{1}{5}$ B) $-\frac{11}{5}$ C) $\frac{1}{5}$ D) $-\frac{9}{5}$ E) $\frac{11}{5}$

12.

$(2x-1)(x-2) + (2-x)(x+3) = 0$
denkleminin çözüm kümesi nedir?

Find the solution set of

$(2x-1)(x-2) + (2-x)(x+3) = 0$

- A) $\{2\}$ B) $\{2,4\}$ C) $\{4\}$ D) \emptyset E) \mathbb{R}

13. $5 - \frac{6}{1 + \frac{3}{x-4}} = 2 \Rightarrow x = ?$

- A) 1 B) 4 C) 7 D) 6 E) -4

14. $\frac{1}{3} + b = \frac{1}{4} - a$ ve $a - b = \frac{1}{6} \Rightarrow a = ?$
 $\frac{1}{3} + b = \frac{1}{4} - a$ and $a - b = \frac{1}{6} \Rightarrow a = ?$

- A) $-\frac{1}{24}$ B) $\frac{1}{12}$ C) $\frac{1}{24}$ D) 1 E) -2

15. $P(x-2) = x^2 + ax - 4$
 polinomunun bir çarpanı
 $x+3$ ise $a = ?$

If $x+3$ is a multiplier $P(x-2) = x^2 + ax - 4$,
 $a = ?$

- A) -3 B) $\frac{5}{3}$ C) 0 D) 2 E) -1

16. $2 \sin x - 3 \cos x = 0 \Rightarrow \cos x = ?$ ($0 \leq x \leq \frac{\pi}{2}$)

- A) $\frac{2}{3}$ B) $\frac{3}{2}$ C) $\frac{2}{\sqrt{13}}$ D) $\frac{3}{\sqrt{13}}$ E) $\frac{2}{\sqrt{5}}$

17. $10x = \pi \Rightarrow \frac{\sin 3x \tan 4x}{\cot x \sin 7x} = ?$

- A) 0 B) -1 C) $\frac{\pi}{10}$ D) 1 E) 2

18. $\sin(\arccos \frac{4}{5}) = ?$

- A) $\frac{4}{5}$ B) $\frac{5}{4}$ C) 0 D) $\frac{3}{5}$ E) $\frac{3}{4}$

19. $1 + i + i^2 + i^3 + \dots + i^{99} = ?$ ($\sqrt{-1} = i$)

- A) 1 B) 0 C) -1 D) i E) $-i$

20. $z = 3 - \sqrt{2}i \Rightarrow \overline{z^{-1}} = ?$

- A) $3 + \sqrt{2}i$ B) $3 - \sqrt{2}i$ C) $\frac{3}{11} + \frac{\sqrt{2}}{11}i$
 D) $\frac{3}{11} - \frac{\sqrt{2}}{11}i$ E) $\frac{3}{2} - \frac{\sqrt{2}}{5}i$

21. $\ln 3 + \ln 3a = \ln 2b - 3 \ln 2$
olduğuna göre $\frac{b}{a}$ aşağıdakilerden hangisidir?

If $\ln 3 + \ln 3a = \ln 2b - 3 \ln 2$, find $\frac{b}{a} = ?$

- A) 2 B) 16 C) 32 D) 36 E) 72

22. $\ln 3 = x$ ve $\ln 5 = y$ ise $\log_{51} 125$ ifadesinin x ve y türünden değeri aşağıdakilerden hangisidir?

If $\ln 3 = x$ and $\ln 5 = y$, express $\log_{51} 125$ in terms of x and y ?

- A) $\frac{3y}{4x}$ B) $12xy$ C) $\frac{4x}{3y}$ D) xy E) $4x - 3y$

23. $f(x) = \log_2(5-x) + \log_3(x-3)$

fonksiyonunun en geniş tanım kümesi aşağıdakilerden hangisidir?

Find the largest domain of

$$f(x) = \log_2(5-x) + \log_3(x-3)$$

- A) $(3, \infty)$ B) $(-\infty, 5]$ C) $(3, 5)$
D) $[3, 5)$ E) $(3, 5]$

24. (a_n) bir geometrik dizi.

$$a_4 = 5, \quad a_7 = 40 \quad \Rightarrow \quad a_{11} = ?$$

Let (a_n) be a geometric sequence.

$$\text{If } a_4 = 5, \quad a_7 = 40 \quad \Rightarrow \quad a_{11} = ?$$

- A) 80 B) 160 C) 320 D) 640 E) 1280

25. $S_n = \sum_{k=1}^n a_k = n^2 + 4n + 1$ olduğuna göre $a_5 = ?$

Let $S_n = \sum_{k=1}^n a_k = n^2 + 4n + 1$, find $a_5 = ?$

- A) 5 B) 13 C) 22 D) 33 E) 46

26. $\lim_{x \rightarrow 1} (x^2 e^{|x^2-1|} + |x+2| \sin \pi x) = ?$

- A) 0 B) 1 C) 2 D) 3 E) 4

27. $\lim_{x \rightarrow 0} \left(\frac{\sin^2 4x}{x^2 \cos 2x} \right) = ?$

- A) 0 B) 4 C) 8 D) 16 E) 32

28. $\lim_{x \rightarrow 0^+} (3 + 3^{-\frac{1}{x}})^{-1} = ?$

- A) $-\frac{1}{3}$ B) 0 C) $\frac{1}{6}$ D) $\frac{1}{3}$ E) 3

29. $\lim_{x \rightarrow 2} \left(\frac{\sqrt{3x+a}-4}{x^2-4} \right)$ limitinin bir gerçel değeri varsa a sayısı aşağıdakilerden hangisi olmalıdır?

If $\lim_{x \rightarrow 2} \left(\frac{\sqrt{3x+a}-4}{x^2-4} \right)$ has a real solution, find $a = ?$

- A) 0 B) 2 C) 4 D) 8 E) 10

30. $f(x) = \frac{x-2}{2x^2 - (m+1)x + 2}$

fonksiyonu \mathbb{R} de sürekli olduğuna göre m aşağıdakilerden hangisi olamaz?

If $f(x) = \frac{x-2}{2x^2 - (m+1)x + 2}$ is continuous on \mathbb{R} ,

which of the followings can not be m .

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

31. $f(x) = e^{2x} \sin 3x \Rightarrow f'''(0) = ?$

- A) 4 B) 6 C) 12 D) -9 E) -5

32. $f(x) = x^3 + ax^2 - bx + 4$ fonksiyonu

$x = 1$ apsisi noktada yerel maksimuma,

$x = -1$ apsisi noktada dönüm noktasına sahipse

$a + b = ?$

If $f(x) = x^3 + ax^2 - bx + 4$ has a local minimum on $x = 1$ and a turning point on $x = -1$ $a + b = ?$

- A) 15 B) 12 C) 9 D) 6 E) 3

33. $y = f(x)$ eğrisinin $A(1, 2)$ noktasındaki teğetinin eğimi 4 olduğuna göre $g(x) = \frac{f(x)}{x}$ fonksiyonu için $g'(1)$ değeri aşağıdakilerden hangisidir?

If the slope of tangent line of $y = f(x)$ on $A(1, 2)$ equal to 4, what is the value of $g'(1)$ for $g(x) = \frac{f(x)}{x}$?

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

34. $f(x) = \sin x - x$ fonksiyonunun $[\pi, 3\pi]$ aralığındaki en büyük değeri kaçtır?

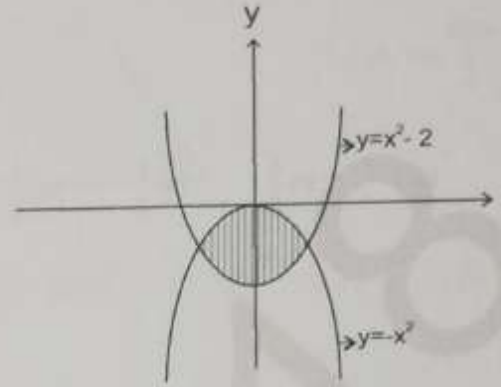
What is the maximum value of $f(x) = \sin x - x$ on the interval $[\pi, 3\pi]$?

- A) $-\pi$ B) $-\frac{\pi}{4}$ C) 0 D) $\frac{\pi}{4}$ E) π

35. $F(x) = \int_0^x \tan(t^2) dt \Rightarrow F'(\frac{\sqrt{\pi}}{2}) = ?$

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

36.



şekilde taralı alanı veren integral aşağıdakilerden hangisidir?

Which of the following integrals calculates the area of the shaded region?

A) $\int_{-\sqrt{2}}^{\sqrt{2}} (2x^2 - 2) dx$

B) $\int_{-\sqrt{2}}^{\sqrt{2}} (2 - 2x^2) dx$

C) $\int_{-1}^1 (2 - x^2) dx$

D) $\int_{-1}^1 (2 - 2x^2) dx$

E) $2 \int_0^{\sqrt{2}} (2 - x^2) dx$

37. $\int_0^{\sqrt{1/2}} x e^{x^2} dx = ?$

- A) 0 B) 1 C) $\frac{1}{2}$ D) $\frac{1}{4}$ E) $\frac{1}{6}$

39. $\begin{vmatrix} 2015 & 2016 \\ 2017 & 2018 \end{vmatrix} = ?$

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

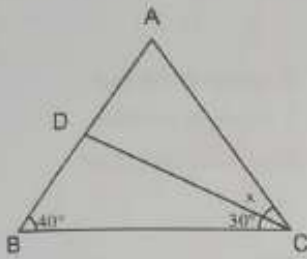
38. $\int_{-1}^2 |1-x^2| dx = ?$

- A) $-\frac{8}{3}$ B) $-\frac{4}{3}$ C) 0 D) $\frac{4}{3}$ E) $\frac{8}{3}$

40. $A = \begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix}, B = \begin{pmatrix} 2 & -4 \\ -3 & 1 \end{pmatrix} \Rightarrow \text{Det}(A^{-1} \cdot B^T) = ?$

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

41.



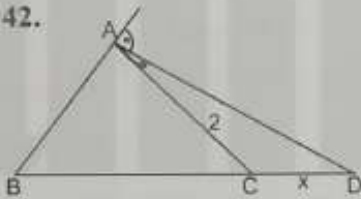
$$|AC| = |DC| \text{ ise}$$

$$x = ?$$

If $|AC| = |DC|$,
find $x = ?$

- A) 10 B) 20 C) 30 D) 40 E) 50

42.

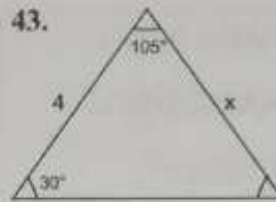


$$\frac{|AB|}{|BD|} = \frac{1}{2}$$

$$x = ?$$

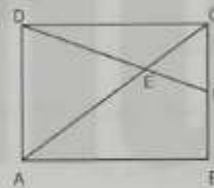
- A) 2 B) 1 C) 4 D) 8 E) 6

43.



- A) $2\sqrt{2}$ B) $\sqrt{2}$ C) $2\sqrt{3}$ D) $\sqrt{3}$ E) $\sqrt{6}$

44.



ABCD dikdörtgen

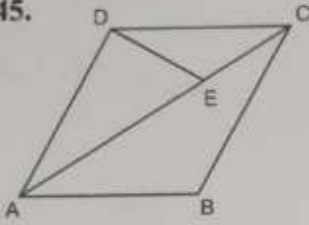
$$|AD|=10 \quad |AE|=24 \quad |EC|=12$$

$$\text{ise } |FB|=?$$

If ABCD is a rectangle, $|AD|=10$ $|AE|=24$ and $|EC|=12$,
find $|FB|=?$

- A) 8 B) 6 C) 5 D) 4 E) 2

45.



$$2|AE| = 3|EC| \text{ ve}$$

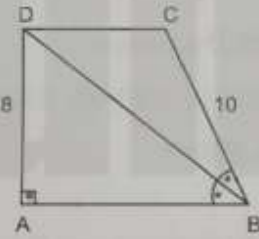
$$A(ABCD) = 50 \text{ ise}$$

$$A(DEC) = ?$$

If $2|AE| = 3|EC|$ and $A(ABCD) = 50$, find $A(DEC) = ?$

- A) 5 B) 15 C) 25 D) 20 E) 10

46.



ABCD dik yamuk

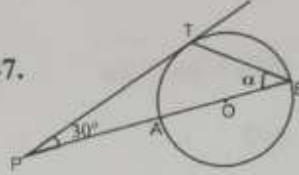
$$|AD| = 8, |BC| = 10 \text{ ise}$$

$$A(ABCD) = ?$$

If ABCD is a right trapezoid, $|AD| = 8$ and $|BC| = 10$, find $A(ABCD) = ?$

- A) 80 B) 100 C) 104 D) 112 E) 160

47.



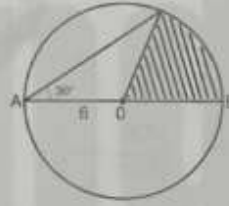
O çemberin merkezi,
T doğrunun çembere
teğet olduğu nokta ise

$$\alpha = ?$$

O is the centre of the circle and TPB is tangent to it at T, find $\alpha = ?$

- A) 60° B) 30° C) 40° D) 50° E) 20°

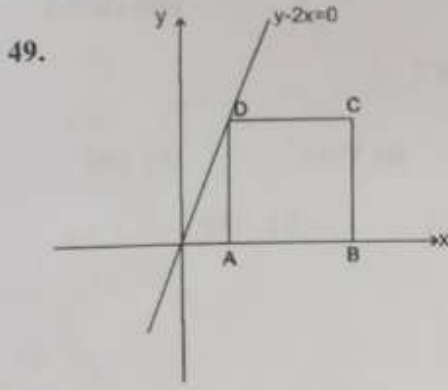
48.



$|AB|$ çap ise
taraf alan = ?

If $|AB|$ is the diameter, find the area of shaded region.

- A) 3π B) 4π C) 5π D) 6π E) π

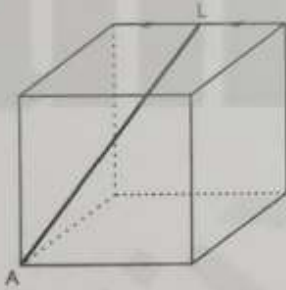


ABCD karedir. A noktasının apsisi 4 ise $A(ABCD)=?$

If ABCD is a square and the axis of point A is 4,
 $A(ABCD)=?$

- A) 8 B) 16 C) 32 D) 144 E) 64

50.



Şekildeki küpün
 bir kenarı 2cm ise,
 $|AL|=?$

If the side length of the cube is 2 cm, $|AL|=?$

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

a,b reel sayıları için

$$a * b = 3a + 2b$$

$$a \blacktriangle b = \frac{ab}{4}$$

işlemleri tanımlanıyor.

51. ve 52. soruları buna göre cevaplayınız.

For a,b real numbers, $a * b = 3a + 2b$

$$a \blacktriangle b = \frac{ab}{4}$$

operations are defined.

Solve the questions 51 and 52 according to these.

51. $3 \blacktriangle (2 * 5) = ?$

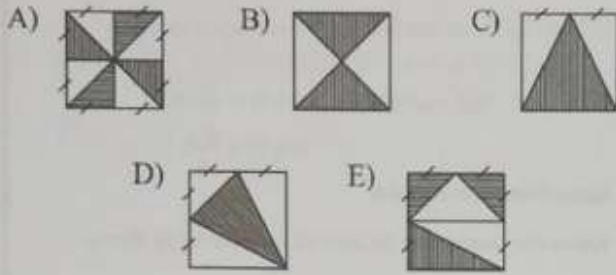
- A) 3 B) 6 C) 12 D) 18 E) 24

52. $(a \blacktriangle 2) * 15 = 6 \Rightarrow a = ?$

- A) -16 B) -8 C) 0 D) 8 E) 16

53. Aşağıdaki şekillerden hangisinde taralı alan diğerlerinden farklıdır?

Which of the shaded region is different from others?



TÜRKİYEM = 38165472
veriliyor.

54. ve 55. soruları buna göre cevaplayınız.

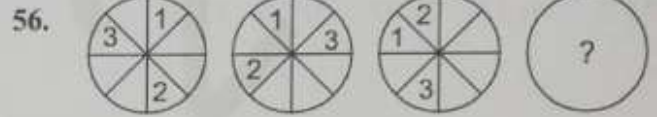
TÜRKİYEM = 38165472
is given. Solve the questions 54. and 55. according to this.

54. TYKR + YMİT = ?

- A) EERY B) RYMI C) TRKY
D) RÜMY E) MEİR

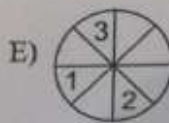
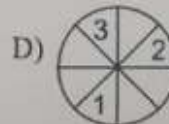
55. YM x RÜ = ?

- A) İRK B) YMT C) TRI
D) EİK E) İME



Soru işaretli daire hangi şekilde olmalıdır?

Which of the following circle should replace "?"?



57. $\frac{AB}{\frac{s}{7}} = \frac{CAB}{7}$ olduğuna göre $A+B-C=?$

If $\frac{AB}{\frac{s}{7}} = \frac{CAB}{7}$, find $A+B-C=?$

- A) 0 B) 1 C) 2 D) 3 E) 4

123.....91011.....313233

1'den 33'e kadar olan doğal sayılar şekildedeki gibi yazılarak n- basamaklı bir sayı elde ediliyor.

58, 59. ve 60. soruları buna göre cevaplayınız.

To obtain an n-digit number, natural numbers between 1 and 33 are written as

123.....91011.....313233

Solve the questions 58, 59, and 60, according to this.

58. n kaçtır?
Find n=?

- A) 33 B) 42 C) 48 D) 57 E) 66

59. Sayının soldan 27. basamağında hangi rakam bulunur?

What is the 27th digit of the number.

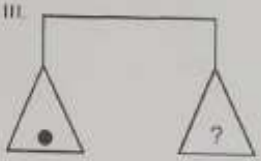
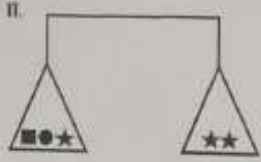
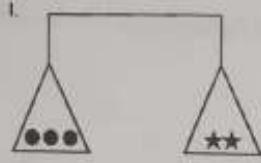
- A) 1 B) 7 C) 8 D) 9 E) 0

60. Sayının sağdan 26. basamağında hangi rakam bulunur?

What is the 26th digit from the right hand side of the number.

- A) 0 B) 1 C) 2 D) 3 E) 4

61.

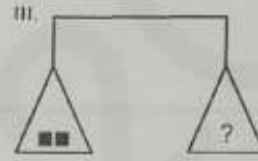
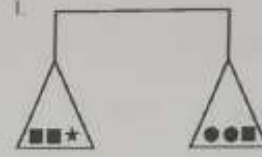


Yukarıdaki terazilerin üçü de dengede olduğuna göre
III. terazide soru işareti aşağıdakilerden hangisi
olabilir?

*All three scales above are in balance. Accordingly, which
of the following does the question mark (?) in third scale
stand for?*

- A) ■ B) ★ C) ■■■ D) ★★ E) ■■■■

62.



Yukarıdaki terazilerin üçü de dengede olduğuna göre
III. terazide soru işareti aşağıdakilerden hangisi
olabilir?

*All three scales above are in balance. Accordingly, which
of the following does the question mark (?) in third scale
stand for?*

- A) ★● B) ●■ C) ●● D) ★★ E) ●●●

63. 246 167 325 459 578

Yukarıdaki sayılar kendi içlerinde bir kurala göre oluşturulmuşlardır. ? yerine aşağıdakilerden hangisi gelmelidir?

246 167 325 459 578

The number above are assigned to a specific rule. Which of the followings should replace "?"?

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

64. 2 3 6 18 108 x

Yukarıdaki sayı dizisinde x aşağıdakilerden hangisidir?

Which one of the followings is the "x" in the number sequence.

A) 118 B) 1008 C) 1080 D) 1944 E) 1954

A B C Ç D E F G Ğ H I J K L M N O P R S Ş T U Ü V Y Z

D=AĞ, P=LU, A=AA, Z=ZZ,...

Yukarıda bir harften eşit uzaklıkta harfler kullanılarak oluşturulan bir kodlama verilmiştir. Bu kodlama bir harfin yerine birden fazla yazım gelebilmektedir. Bu kodlama yardımı ile kelimeler türetiliyor. Örneğin;

S=PT, İ=IJ, V=TZ, A=AA, S=MY seçilirse

SİVAS = PTIJTZAAMY kodlaması elde edilebilir.

65. ve 66. soruları yukarıdaki bilgiye göre cevaplayınız.

A coding which is generated by using the letters at the same distance from a letter is given above. In this coding, more than one writing may be used for one letter. With the help of this coding, words are generated such as,

if
S=PT, İ=IJ, V=TZ, A=AA and S=MY
the coding

SİVAS = PTIJTZAAMY
may be obtained

Solve the questions 65 and 66 according to these.

65. Yukarıda verilen kodlama yardımıyla CÜYÖS

kelimesinin kodlaması aşağıdakilerden hangisi olabilir?

With the help of the coding given above, which of the followings might be the coding for "CÜYÖS"?

A) BÇUVVZNRÖT B) ADTYVZMSRU C) BÇTYÜZOPRS
D) BÇUVVZMSPT E) ADŞZVZPNV

66. JLAAPTİOGK kodlaması ile verilen kelime aşağıdakilerden hangisidir?

Which of the following is the word for the coding JLAAPTİOGK?

- A) PASLI B) KASLI C) PATLI
D) KAPLI E) KATLI

n bir pozitif tam sayı olsun, $n\#$ ile n ye kadar olan tüm asal sayıların çarpımını tanımlayalım.

Örneğin;

$$5\# = 2 \cdot 3 \cdot 5 = 30$$

$$10\# = 2 \cdot 3 \cdot 5 \cdot 7 = 210$$

dir.

Let n be a positive integer. Let us define the multiply of the prime numbers between 1 and n with $n\#$ such as

$$5\# = 2 \cdot 3 \cdot 5 = 30$$

$$10\# = 2 \cdot 3 \cdot 5 \cdot 7 = 210$$

Solve the questions 67, 68, and 69, according to this rule.

67. $16\#$ kaçtır?

Find $16\# = ?$

- A) 2310 B) 2730 C) 210 D) 30030 E) 30300

68. $x\# = 28\#$ ise x kaç farklı değer alabilir?

If $x\# = 28\#$, how many different values can x have?

- A) 2 B) 3 C) 4 D) 5 E) 6

69. $\frac{x\#}{8\#} = 11$ olduğuna göre x aşağıdakilerden hangisi olabilir?

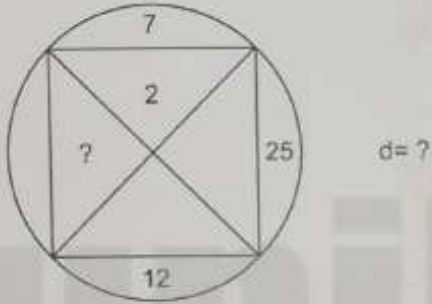
If $\frac{x\#}{8\#} = 11$, which of the followings can be " x " ?

- A) 12 B) 13 C) 14 D) 15 E) 16

biçiminde tanımlanıyor.
the rule is defined as in the figure

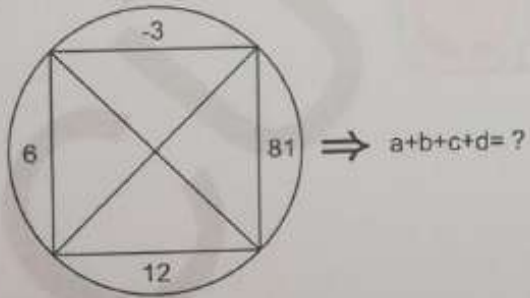
70. ve 71. soruları buna göre cevaplayınız.
Solve the questions 70. and 71. according to this rule.

70.



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

71.



- A) 13 B) 14 C) 15 D) 16 E) 17

72.

x	a	b
a	b^2+4	
b		$28-a^2$

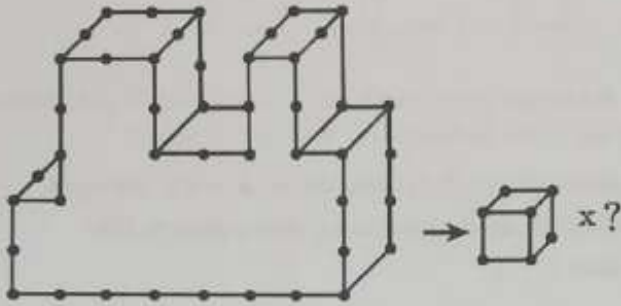
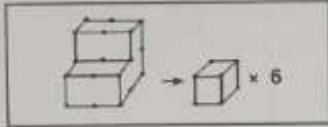
Yukarıdaki çarpma tablosunda a ve b harfleri pozitif birer sayının yerine kullanılmıştır. Buna göre a kaçtır?

In the multiplication table above, a and b are used instead of positive numbers. According to this, find a = ?

- A) 3 B) 4 C) 5 D) 6 E) 7

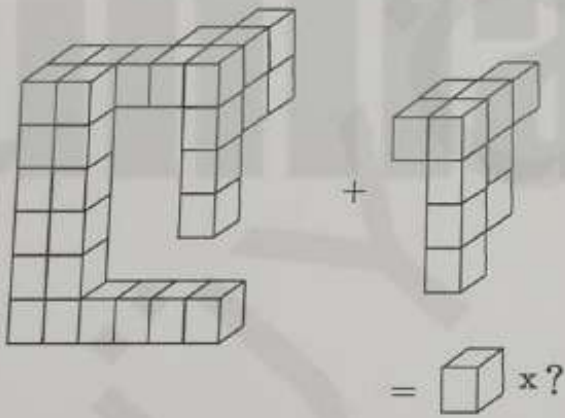
73.

ÖRNEK
EXAMPLE



- A) 48 B) 50 C) 52 D) 54 E) 56

74.



- A) 36 B) 37 C) 38 D) 39 E) 40

75. Aşağıdaki şekillerden hangisi farklıdır?

Which of the following shape is different?

