

# YÖS

# EN DENEME

# DENEME SINAVI

*YÖS 5'li Deneme  
1. CUP - A Grup  
1994 - 1995*

## EN DENEME & İNTYÖS

### İŞBİRLİĞİ İLE

### ÜNİVERSİTELERİN

### YÖS SINAVLARINA UYGUN

### YENİ NESİL 5'Lİ DENEME

# 3

INTERNATIONAL

# YÖS

1. DAVI	1970
VAMI	7253
DOST	0252
TAVA	1253
SAVI	5283

DOST + VAMI = ?

(1970 5283)

7253  
SAVI~~A) DAVI~~

B) VADI

~~C) SAVI~~

D) TAVA

E) MAVI

3. I.  $a^3 \rightarrow b^3 = ab$

II.  $a \Delta b = a^2 + b^2$

$(27 \rightarrow 64) + (4 \Delta 3) = ?$

A) 47

B) 43

C) 33

D) 35

~~E) 37~~

$$3^3 \rightarrow 4^3 = 3 \cdot 4 = 12 \quad ) + 37$$

$$4 \Delta 3 = 16 + 9 = 25$$

2. YÖ<sup>3</sup>  
YÖ  
YÖ  
+ YÖ  
9 SY<sup>2</sup>  
YÖS = ?

~~A) 239~~

B) 392

C) 293

D) 923

E) 932

4. AY MU Yİ ?? İL NE

~~A) UN~~

B) ÜN

C) LE

D) MA

E) NU

AY - MU - Yİ - ?? - İL - NE

▽ Birinin bitmesiyle diğeri başlıyor.

0 zaman MU'dan sonra gelecek olan basındaki harf kesinlikle "u" olmalıdır

Bitişide sonraki NE olduğuna göre N ile bitmelidir Cevap UN

5. 13, 17, 25, 32, 37, 47, 58, 71, 79, ?

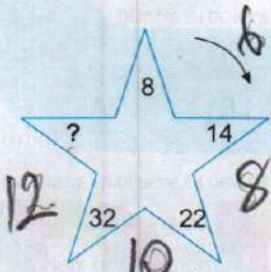
- A) 83 B) 87 C) 91 ~~D) 95~~ E) 97

$58 \rightarrow (58 + 5 + 8) = 71$

$71 \rightarrow (71 + 7 + 1) = 79$

$79 \rightarrow (79 + 7 + 9) = 95$

6.



- A) 46 ~~B) 44~~ C) 42 D) 40 E) 38

7.

		8	4				
+	A	B	C	x	A	B	C
2	A	C	M	K	2	4	E
8	B	M	E	N	8	B	F
4	C	K	N	8	C	B	H

H + K + M + N + F = ?

$32 + 6 + 10 + 12 + 64$

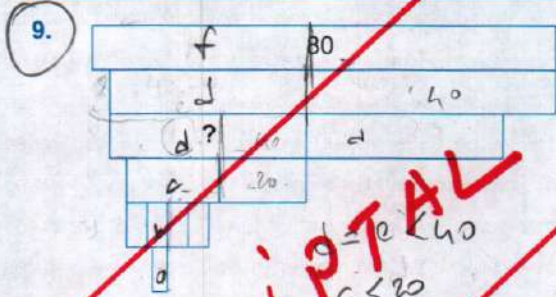
- A) 120 B) 122 ~~C) 124~~ D) 126 E) 128

8.

	xyz	mxy	nym
xm	x	xm	m
yn	y	y	ny
zx	xz	x	?

- A) nx B) nm C) x D) m ~~E) -~~

Ortak olanları yazalım.  
nym ile zx in ortak harfi y'dir.

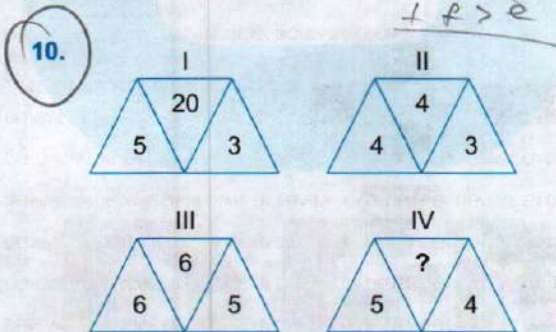


- A) 22    **B) 26**    C) 30    D) 34    E) 38

*Handwritten notes for question 9:*  
 $f = 20 + 10$   
 $c < 20$   
 $16b > 16a$   
 $16c > 16b$   
 $2d > 4c$   
 $e > 2d$   
 $f > e$

*Handwritten notes:*  
 $5 > 2$   
 $80 > 16a$   
 $f > 16a$

*Handwritten notes:*  
 $16b > 16a$   
 $4c > 16b$   
 $2d > 4c$   
 $e > 2d$   
 $f > e$



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

*Handwritten calculations for question 10:*  
 I  $\rightarrow (5-3)^4 = 2^4 = 16$      $16 + (5-1) = 20$   
 II  $\rightarrow (4-3)^4 = 1^4 = 1$      $1 + (4-1) = 4$   
 III  $\rightarrow (6-5)^4 = 1^4 = 1$      $1 + (6-1) = 6$   
 IV  $\rightarrow (5-4)^4 = 1^4 = 1$      $1 + (5-1) = 5$

11. Aşağıdaki harflerden hangisi bir özelliğinden dolayı diğerlerinden farklıdır?

Which of the following letters is different from the others due to a feature?

- A) H    B) A    C) O    D) M    **E) K**



*Handwritten note:* K dışında hepsinin sağ-sol simetrisi var.

12.

*Handwritten notes above the table:*  
 $97 + A$   
 $97$   
 $53$   
 $97$   
 $22$   
 $17$

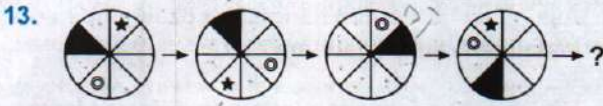
$97 + A$		$12 + A$
41	38	B $\rightarrow 97 + A$
47	A	50 $\rightarrow 97 + A$

Sayılar boşluklara yerleştirildiğinde satır, sütun ve çapraz toplamaların eşit olabilmesi durumunda  $A + B = ?$

When blanks are filled with numbers, the sums are equal horizontally, vertically and diagonally. In this case, what is  $A + B = ?$

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

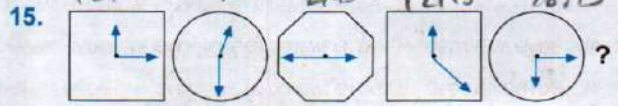
*Handwritten calculations for question 12:*  
 $12 + A + 18 + A + 50 = 97 + A$   
 $A \rightarrow 17$   
 $B \rightarrow 18 + 17 = 35$   
 $A + B = 17 + 35 = 52$



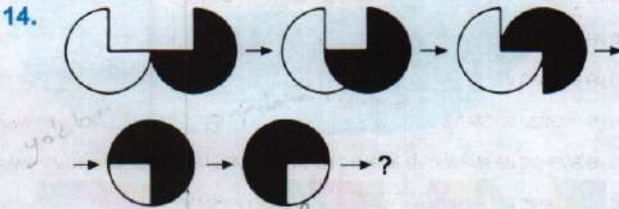
- A)
- B)
- C)
- D)
- E)

⊙ → b birim saat yönünde

▲ her defasında 1 fazla



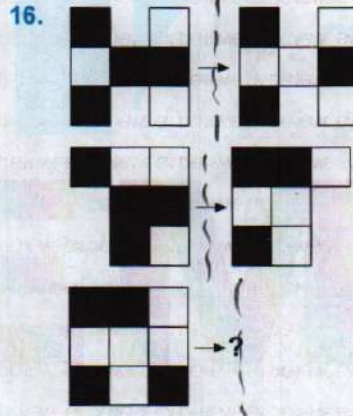
- A)
- B)
- C)
- D)
- E)



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

\* Beyaz soldenmeden sağa hareket ediyor.

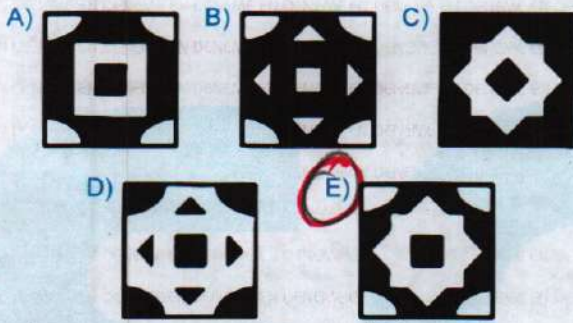
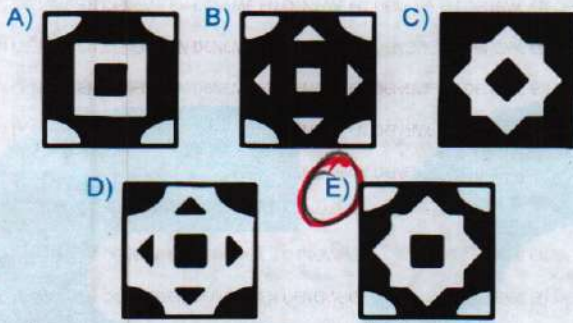
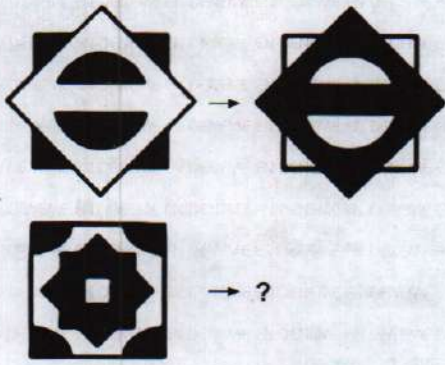
\* Siyah iki adımda bir dönüyor.



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

Symetrik al neme değışim,

17.



\* Renk deđerimip

19.

<p>COVID</p> <p>Başlangıç/Start (0) Taslam</p> <p>1, 4, 3</p>	<p>1. gün/Day 1</p> <p>4, 16, 12</p>	<p>2. gün/Day 2</p> <p>13, 52, 39</p>
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4. gün / Day 4 = ?

- A) 120, 480, 360  
 B) 119, 377, 258  
 C) 121, 484, 363  
 D) 121, 363, 484  
 E) 117, 379, 259

Virüs sayısı

Başlangıç = 3<sup>0</sup>

1.gün = 3<sup>0</sup> + 3<sup>1</sup>

2.gün = 3<sup>0</sup> + 3<sup>1</sup> + 3<sup>2</sup>

3.gün = 3<sup>0</sup> + 3<sup>1</sup> + 3<sup>2</sup> + 3<sup>3</sup>

4.gün = 3<sup>0</sup> + 3<sup>1</sup> + 3<sup>2</sup> + 3<sup>3</sup> + 3<sup>4</sup>

1 + 3 + 9 + 27 + 81 = 121

Kol sayısı = Virüs x 3

= 121 x 3

= 363

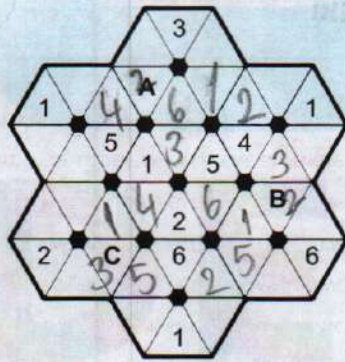
ORTA SAYI

121

+ 363

484

18.



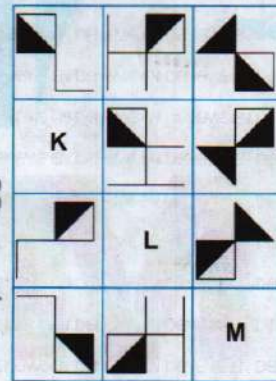
Yukarıdaki altgen sudoku içerisinde 1'den 6'ya kadar rakamlar yerleştiriliyor.

Buna göre, A + B + C = ?

Numbers from 1 to 6 are put in the hexagon sudoku. In this case, what is A + B + C = ?

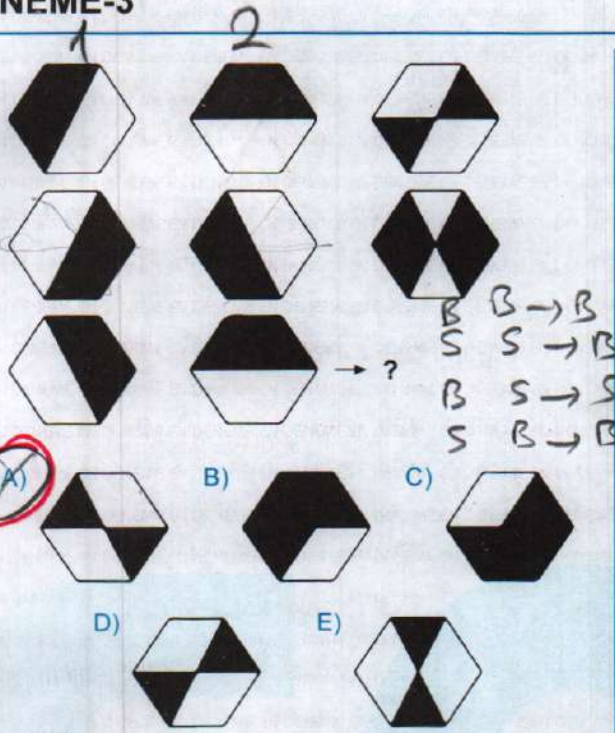
- A) 5 B) 6 C) 7 D) 8 E) 10

20.



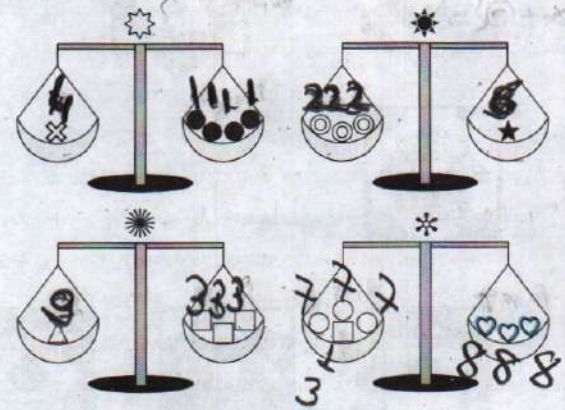
- A)
- B)
- C)
- D)
- E)

21.



1+2' de siyahlar üst üste gelince beyaz, farklı renkler siyah oluyor.

23.

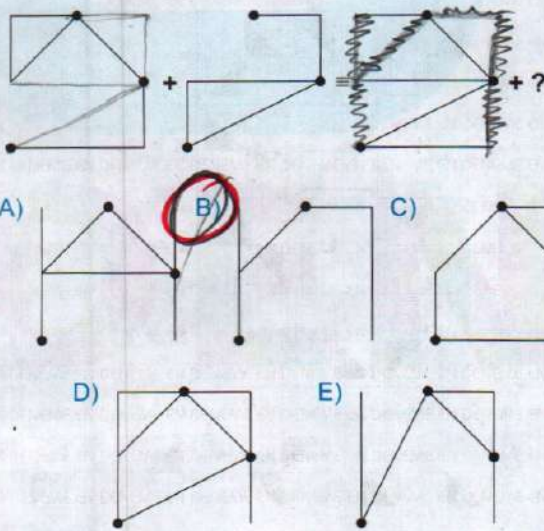


Buna göre şekli kaç olur?

The following equations are obtained by matching the numbers 1, 2, 3, 4, 5, 6, 7, 8, 9 with the figures and using them only once. According to this data given, What is ?

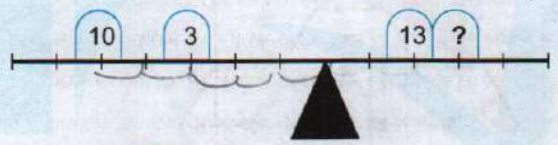
- ~~A) 5~~ B) 8 C) 3 D) 6 E) 7

22.



A sonradan aradıklar ? yerine çizilebilir.

24.



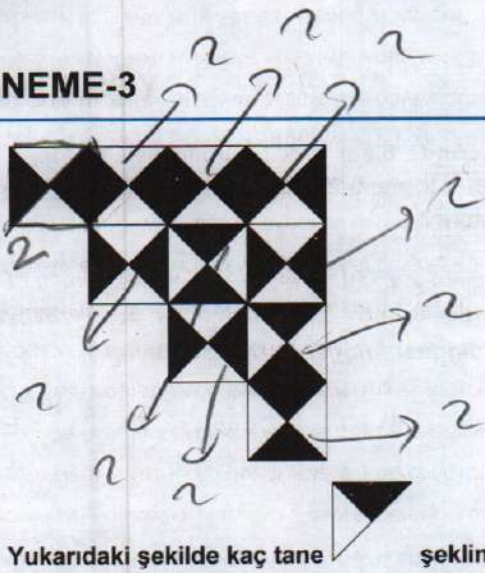
- A) 0 B) 11 C) 33 D) 46 E) 59


$$\begin{array}{r} 3 \times 3 = 9 \\ 10 \times 5 = 50 \\ \hline 59 \end{array}$$


$$\begin{array}{r} 13 \times 2 = 26 \\ + 3 \times ? = x \\ \hline 59 \end{array}$$

$$\begin{array}{l} 3 \times ? = 33 \\ ? = 11 \end{array}$$

25.

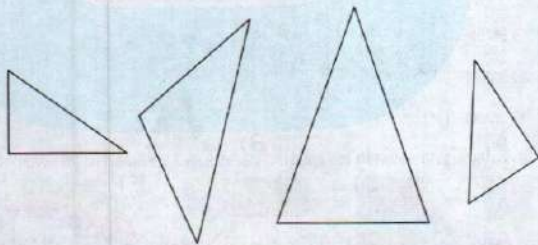


Yukarıdaki şekilde kaç tane  şeklinden vardır?

How many  shapes are there in the figure above?

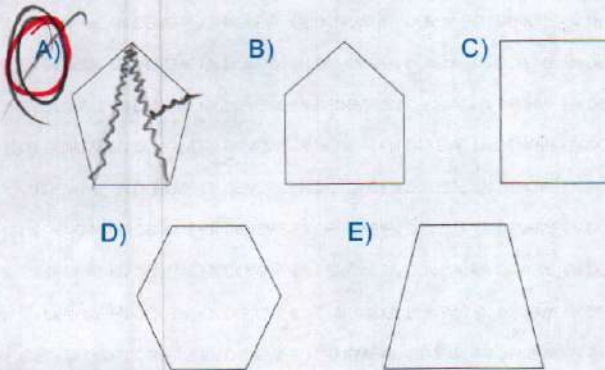
- A) 18 B) 19 C) 21 **D) 20** E) 23

26.

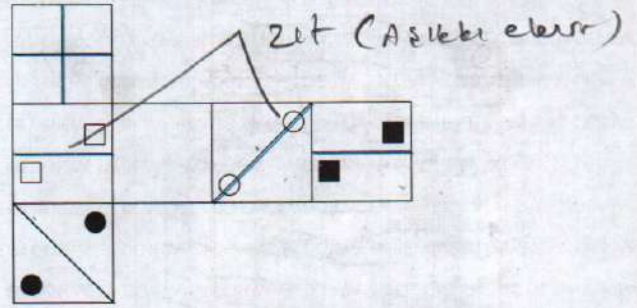


Yukarıda verilen parçaların birleşiminden hangi şekil ortaya çıkar?

Which shape do we get when we combine shapes above?

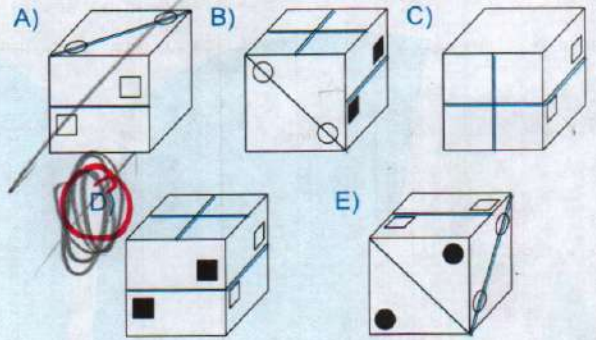


27.

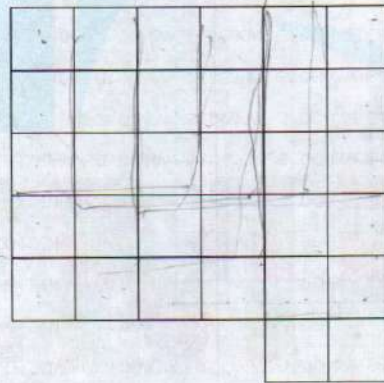


Aşağıdakilerden hangisi küpün kapalı halidir?

Which of the following is the closed state of the cube?



28.



Yukarıdaki şekilde kaç tane kare vardır?

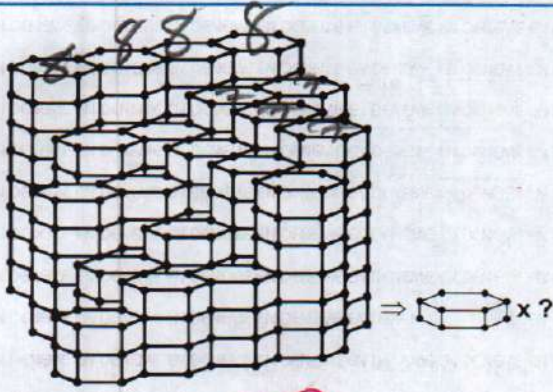
How many squares are there in the figure above?

- A) 79 B) 77 C) 75 **D) 73** E) 71

1x1 → 25  
2x2 → 21  
3x3 → 12  
4x4 → 6  
5x5 → 2



29.



- A) 111 B) 113 C) 115 D) 117 E) 119

$$32 + 28 + 30 + 10 + 4 + 9 + 2 = 115$$

31. Aralarında 6'şar fark bulunan sekiz ardışık tam sayının toplamı 224 olduğuna göre, en büyük sayı kaçtır?

The sum of eight consecutive integers, each of which is six more than each other, is 224. What is the biggest integer in this sequence?

- A) 49 B) 50 C) 48 D) 47 E) 51

$$\begin{matrix} x & x+6 & x+12 & x+18 & x+24 & x+30 \\ x+36 & x+42 & & & & \end{matrix}$$

$$8x + 168 = 224$$

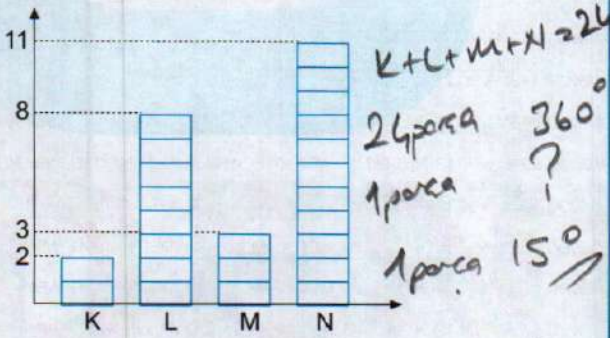
$$8x = 224 - 168$$

$$8x = 56$$

$$x = 7$$

$$x + 42 \rightarrow 7 + 42 = 49$$

30.



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

32.  $\frac{(-a^{-2})^3 \cdot (-a^{-1})^2 \cdot (a^2)^4}{-(a^{-2})^2 \cdot (-a^{-1})^3} = ?$

- A)  $a^{-5}$  B)  $-a^3$  C)  $-a^{-5}$  D)  $a^{-3}$  E)  $-a^{-3}$

$$\frac{(-a^{-6}) \cdot (a)^2 \cdot a^{-8}}{-a^{-4} \cdot (-a)^{-3}} = \frac{-a^{-12}}{+a^{-7}} = -a^{-5}$$

020707

33.

$A = \sqrt{72 - \sqrt{72 - \sqrt{72 - \dots}}}$   
 $B = \sqrt{132 + \sqrt{132 + \sqrt{132 + \dots}}}$

$A = 8$   
 $B = 12$

$\frac{A}{B} = ? = \frac{8}{12} = \frac{2}{3}$

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

11.12

023410

$x \in \mathbb{R}$      $-3+1$   
 $|x^2 - 2x - 3| = |x - 3| \Rightarrow \sum x = ? = -2 + 0 + 3 = 1$

$|x+1| = |x-3|$   
 $|x+1| + |x-3| = 0$   
 $|x-3| \cdot [x+1-3] = 0$   
 $|x+1| = 1$   
 $x+1 = -1 \vee x+1 = 1$   
 $\Rightarrow x = -2 \quad x = 0$

020806

34.

$\frac{x^2 - ax + 10}{x^2 - 6x + b} = \frac{x+5}{x-8} \Rightarrow a - b = ? = 9$

A) -9    B) -5    C) -3    D) 5    E) 9

Deneme 10 un sarpan larından biri 5 imiş.

$\frac{(x+5) \cdot (x+2)}{(x-8) \cdot (x+2)} = \frac{x+5}{x-8}$

$(x-8)$  olmalı  
 $\rightarrow (x+5)(x+2) = x^2 + 7x + 10$   
 $\rightarrow (x-8)(x+2) = x^2 - 6x - 16$

$7 = -2 \Rightarrow a = -7$   
 $b = -16$   
 $a - b = -7 - (-16) = -7 + 16 = 9$

020903

36.

$a - 2b + 3c = -5$   
 $2a + b - 4c = 3$   
 $a + 2b - 3c = 11$

$1. + 3. \Rightarrow 2a = 6 \Rightarrow a = 3$

$\Rightarrow a + b + c = ? = 3 + 11 = 14$

A) 10    B) 11    C) 13    D) 14    E) 15

$3 - 2b + 3c = -5 \Rightarrow -2b + 3c = -8$   
 $2 \cdot 3 + b - 4c = 3 \Rightarrow b - 4c = 3$

$-b - c = -11 \Rightarrow b + c = 11$

37.  $0! + 2! + 4! + \dots + 100!$

toplaminin birler basamağındaki rakam kaçtır?

$0! + 2! + 4! + \dots + 100!$

What is the number on the ones-digit of operation above?

- A) 1    B) 2    C) 4    **D) 7**    E) 9

$0! + 2! + 4! + \dots \equiv ? \pmod{10}$

$\sqrt{1} + \sqrt{2} + \sqrt{24}$

27'nin birler basamağı 7 dir

39.  $f(x) = ax + b$

$f(2) = 5 \rightarrow f(2) = 2a + b = 5$

$f^{-1}(-4) = -1 \Rightarrow f(-2) = ? \quad f(-1) = -a + b = -4$  T.T. 5

$\rightarrow f(-1) = -4$

**A) -7**    B) -5    C) -3    D) 3    E) 7

$3a = 9 \Rightarrow a = 3$

$a = 3$

$b = -1$

$f(x) = 3x - 1$

$\rightarrow f(-2) = 3(-2) - 1 = -7$

0202002

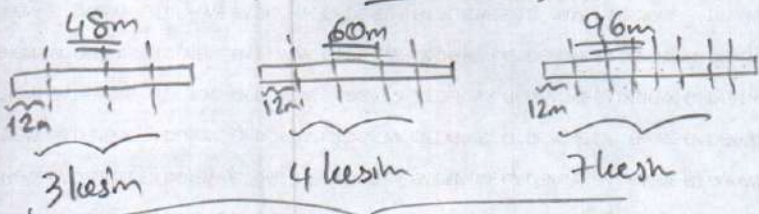
38. 48 m, 60 m ve 96 m uzunluğundaki üç demir çubuk eşit uzunlukta parçalara ayrılmak isteniyor. Bu işi yapacak olan usta her bir kesim için 5 TL ücret almaktadır.

Buna göre, bu iş en az kaç TL ye yaptırılabilir?

We want to have three iron rods of 48 meters, 60 meters and 96 meters cut in equal lengths. A blacksmith requests 5 liras for each cutting. How much do all the cuttings cost at least?

- A) 55    B) 60    C) 65    **D) 70**    E) 85

Her bir parça 12m uzunluğunda olmalı



Toplamda  $\rightarrow$  14 kesim gerekir  
 $14 \times 5 \text{ TL} = 70 \text{ TL}$

020603

40.  $\frac{30 \cdot (0,2)^{x+1} + 3 \cdot (0,04)^{x-1}}{3 \cdot (0,2)^x} = 127 \Rightarrow x = ?$

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

$\frac{30 \cdot (5^{-1})^{x+1} + 3 \cdot (5^{-2})^{x-1}}{3 \cdot (5^{-1})^x} = 127$

$\Rightarrow \frac{30 \cdot 5^x \cdot \frac{1}{5} + 3 \cdot 5^{-2x} \cdot 5^2}{3 \cdot 5^x} = 127$

$\Rightarrow \frac{5^x \cdot (6 + 75 \cdot 5^{-x})}{3 \cdot 5^x} = 127$

$\Rightarrow \frac{3(2 + 25 \cdot 5^{-x})}{3} = 127$

$\Rightarrow 25 \cdot 5^{-x} = 125$

$\Rightarrow 5^{-x} = 5^1$

$\Rightarrow -x = 1$

$\Rightarrow x = -1$

41.  $\beta(x-2, y+3) = (x^3 + 5, 2^{y+2})$   
ile tanımlı  $\beta$  bağıntısı için  $\beta(a, b) = (69, 128)$  olduğuna göre,  $2a - 3b$  kaçtır?

$\beta(a, b) = (69, 128)$  for " $\beta$ " finitary relation defined with  $\beta(x-2, y+3) = (x^3 + 5, 2^{y+2})$

What is  $2a - 3b = ?$  considering this data?

- A) -11      B) -13      C) -15

- D) -17      E) -20

$\begin{cases} x-2=2 \\ y+3=8 \end{cases}$  iken  $\begin{cases} x^3+5=69 & 2^{y+2}=128 \\ \Rightarrow x^3=64 & =2^7 \\ \Rightarrow x=4 & \Rightarrow y+2=7 \\ & \Rightarrow y=5 \end{cases}$

$\begin{cases} 4-2=2=a \\ 5+3=8=b \end{cases} \rightarrow 2a-3b=2 \cdot 2-3 \cdot 8 = 4-24 = -20$

43.  $x^2 - 4x + 2k - 7 = 0$ ,  $\mathcal{C}.K = \{x_1, x_2\}$   $x_1 + x_2 = \frac{-b}{a} = 4$   
 $x_1^2 \cdot x_2 + x_2^2 \cdot x_1 = 20 \Rightarrow k = ?$   $x_1 \cdot x_2 = \frac{c}{a} = 2k-7$

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

$x_1 \cdot x_2 (x_1 + x_2) = 20$   
 $\Rightarrow (2k-7) \cdot (4) = 20$   
 $\Rightarrow 2k-7=5$   
 $\Rightarrow 2k=12 \Rightarrow k=6$

02240201

42.  $P(x) = (a-1)x^3 + 3x^2 - (b-1)x + 3$   
 $Q(x) = 2x^3 - (c+1)x^2 - (2b-1)x - 2$   
polinomları veriliyor.

$2P(x) - 3Q(x) = -4x^3 + 2x + 12 \Rightarrow \frac{a \cdot c}{b} = ?$

$P(x) = (a-1)x^3 + 3x^2 - (b-1)x + 3$   
 $Q(x) = 2x^3 - (c+1)x^2 - (2b-1)x - 2$   
polynomials are given. What is

$2P(x) - 3Q(x) = -4x^3 + 2x + 12 \Rightarrow \frac{a \cdot c}{b} = ?$

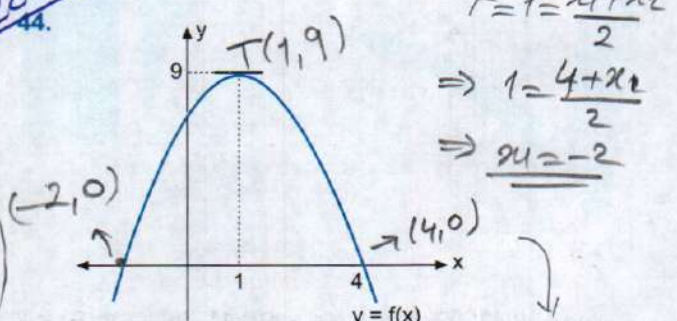
- A) -10      B) -8      C) -6      D) -4      E) 4

$2[(a-1)x^3 + 3x^2 - (b-1)x + 3] - 3[2x^3 - (c+1)x^2 - (2b-1)x - 2]$   
 $= -4x^3 + 2x + 12$

$\begin{cases} 2(a-1) - 6 = -4 \\ \Rightarrow 2a - 8 = -4 \\ \Rightarrow 2a = 4 \\ \Rightarrow a = 2 \end{cases}$   $\begin{cases} 2 \cdot 3 + 3(c+1) = 0 \\ \Rightarrow c+1 = -2 \\ \Rightarrow c = -3 \end{cases}$   $\begin{cases} -2(b-1) + 3(2b-1) = 2 \\ \Rightarrow 4b - 1 = 2 \\ \Rightarrow b = \frac{3}{4} \end{cases}$

$\Rightarrow \frac{a \cdot c}{b} = \frac{2 \cdot (-3)}{3/4} = -8$

022703



$\Gamma = 1 = \frac{x_1 + x_2}{2} \Rightarrow 1 = \frac{4 + x_2}{2} \Rightarrow x_2 = -2$

$y = f(x) = a(x-1)^2 + 9$

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

$\Rightarrow 0 = a \cdot (4-1)^2 + 9$   
 $\Rightarrow -9 = 9a$   
 $\Rightarrow a = -1$

$f(x) = -1 \cdot (x-1)^2 + 9 = -x^2 + 2x + 8$

45. a pozitif bir gerçel sayıdır.

$$\frac{5}{4} = 1\frac{1}{4} = 1,25$$

$$a + \frac{5}{4} = 2 + 1,25 \in \mathbb{Z} \text{ olduğundan}$$

toplamı bir tam sayıya eşit olduğuna göre, a sayısının ondalık kısmındaki rakamların toplamı kaçtır? 2 sayısı = ..., 75 olmalıdır

"a" is a positive real number and the sum  $a + \frac{5}{4}$  equals an integer.

What is the sum of the numbers on the tenths of number "a" ki: ..., 75

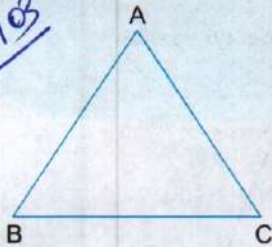
$$1,25$$

A) 12 B) 10 C) 8 D) 7 E) 5

$$7+5=12$$

$$..., 00 \in \mathbb{Z}$$

46.



$$m(A) + m(B) + m(C) = 180^\circ$$

$$m(\hat{A}) = 41^\circ 23' 53'', m(\hat{C}) = 69^\circ 41' 38'' \Rightarrow m(\hat{B}) = ?$$

A)  $68^\circ 29' 54''$  B)  $67^\circ 28' 53''$  C)  $68^\circ 55' 30''$

D)  $68^\circ 54' 29''$  E)  $67^\circ 54' 30''$

$$\begin{array}{r} m(A) + m(B) = 41^\circ 23' 53'' \\ + 69^\circ 41' 38'' \\ \hline 111^\circ 05' 31'' \end{array}$$

$$\begin{array}{r} m(\hat{C}) = 180^\circ \\ - 111^\circ 05' 31'' \\ \hline 68^\circ 54' 29'' \end{array}$$

47.  $\frac{2 \sin x + 3 \cos x}{2 \cos x - \sin x} = \frac{2}{3} \Rightarrow \tan x = ?$

A)  $-\frac{3}{8}$  B)  $-\frac{5}{8}$  C)  $-\frac{1}{8}$  D)  $\frac{3}{8}$  E)  $\frac{5}{8}$

$$6 \sin x + 9 \cos x = 4 \cos x - 2 \sin x$$

$$\Rightarrow 6 \sin x + 2 \sin x = 4 \cos x - 9 \cos x$$

$$\Rightarrow 8 \sin x = -5 \cos x$$

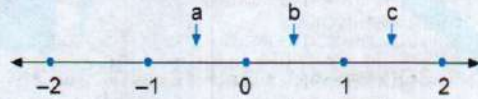
$$\Rightarrow \frac{\sin x}{\cos x} = -\frac{5}{8}$$

$\tan x$

$$a = -\frac{1}{3}, b = \frac{1}{2} \text{ için } \left(-\frac{1}{3}\right)^2 \neq \left(\frac{1}{2}\right)^2$$

her zaman doğru değildir.

48. Aşağıdaki sayı doğrusunda a, b ve c sayılarının buldukları yerler gösterilmiştir.



Buna göre,

I.  $a^2 > b^2$

II.  $b^2 < c^2$

III.  $b \cdot c < a \cdot c$

ifadelerinden hangileri her zaman doğrudur?

In the number line above, numbers "a", "b" and "c" are located and shown.

According to this, which of these expressions are always right?

I.  $a^2 > b^2$

II.  $b^2 < c^2$

III.  $b \cdot c < a \cdot c$

A) I

B) II

C) I - II

D) I - III

E) II - III

02290102

49.  $Z_1 = 4 \cdot \text{cis}53$   
 $Z_2 = 6 \cdot \text{cis}113$   $\Rightarrow |Z_1 - Z_2| = ? = 2\sqrt{7}$

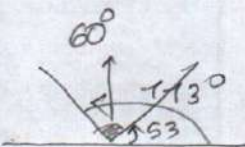
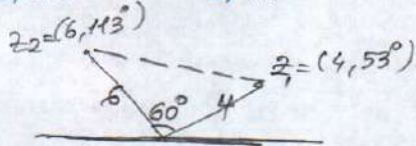
A)  $2\sqrt{7}$

B)  $3\sqrt{5}$

C)  $3\sqrt{7}$

D)  $2\sqrt{5}$

E)  $4\sqrt{7}$



$$|z_1 - z_2|^2 = 4^2 + 6^2 - 2 \cdot 4 \cdot 6 \cdot \cos 60^\circ$$

$$= 16 + 36 - 2 \cdot 4 \cdot 6 \cdot \frac{1}{2}$$

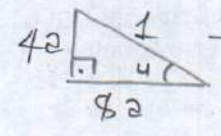
$$= 52 - 24$$

$$= 28$$

$\Rightarrow |z_1 - z_2| = 2\sqrt{7}$

51.  $\arcsin 4a = \arccos 8a \Rightarrow a = ?$

- A)  $\frac{\sqrt{5}}{12}$  B)  $\frac{\sqrt{3}}{20}$  C)  $\frac{\sqrt{5}}{20}$  D)  $\frac{\sqrt{2}}{10}$  E)  $\frac{\sqrt{3}}{10}$



$\rightarrow \sin u = 4a$   
 $\rightarrow \cos u = 8a$   
 $(4a)^2 + (8a)^2 = 1^2$   
 $80a^2 = 1$   
 $a = \frac{1}{\sqrt{80}} = \frac{\sqrt{5}}{20}$

022302

50. Bir su deposuna her gün içindeki su miktarı kadar su ilave ediliyor. Deponun tamamı 130 günde dolmaktadır.

Deponun  $\frac{1}{4}$ 'ü kaç günde dolar?

Water is added to a water tank every day as much as the amount of water in it. As the whole tank can be filled in 130 days, how many days does it take to fill  $\frac{1}{4}$  of it?

- A) 65 B) 128 C) 120 D) 35 E) 70

Başlangıç: A lt su olsun.

0.	1.	2.	3.	4.
A	+A	+2A	+4A	+8A
↓	↓	↓	↓	↓
A	2A	4A	8A	16A

$\frac{1-r^n}{1-r} = r^{n-1} + r^{n-2} + \dots + r + 1$  olduğu

ne depodaki ilk miktarın A lt oldu su düşünülürse,

$A(1-2^{130}) = 2 + 2 + \dots + 1$

Deponun  $\frac{1}{4}$ 'ü  $\rightarrow \frac{1}{4}$ 'ü  $\rightarrow \frac{2^{130}}{2^2} = 2^{128} \rightarrow 128$  gün

02190102

52. "1115500" sayısının rakamları ile birbirinden farklı 7 basamaklı kaç sayı yazılabilir?

How many different seven-digit numbers can we write using the figures of "1115500" ?

- A) 115 B) 120 C) 130 D) 140 E) 150

$\frac{6!}{3!2!2!} = \frac{720}{24} = 30$

$= 5 \cdot 6 \cdot 5$   
 $= 150$

DENEME-3

$2-2=0 \Rightarrow a=2$

$=x_1 \cdot x_2 = \frac{1}{3} \cdot 27 = 9$   
 ↑ YÖS / TÖBT

02320102

53.  $(a_n) = \frac{(a-2)n^2 - (2b+1)n + 4}{(b+2)n - 3} = \frac{-(2b+1)n + 4}{(b+2)n - 3}$

dizisi sabit bir dizi olduğuna göre,  $a + b = ?$

$(a_n) = \frac{(a-2)n^2 - (2b+1)n + 4}{(b+2)n - 3}$

$= 2 + \frac{5}{2} = \frac{9}{2}$

is a fixed sequence. What is  $a + b = ?$

- A)  $\frac{5}{2}$  B) 3 C)  $\frac{7}{2}$  **D)  $\frac{9}{2}$**  E) 4

$= \frac{-(2b+1)[n + \frac{4}{-(2b+1)}]}{(b+2)[n - \frac{3}{b+2}]}$

$\frac{4}{-(2b+1)} = -\frac{3}{b+2} \Rightarrow 4b+8 = 6b+3$   
 $\Rightarrow 8-3 = 6b-4b$   
 $\Rightarrow \frac{5}{2} = b$

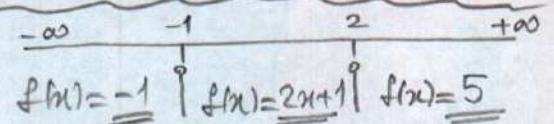
023006

55.  $x^{\log_3 x} = 27 \cdot x^2, x \in \mathbb{R} \Rightarrow \Pi x = ?$

- A) 6 B) 7 C) 8 **D) 9** E) 10

$\frac{x^{-2+\log_3 x}}{x} = 3^3$ ; her iki tarafı log  
 $\Rightarrow \log_3 x^{-2+\log_3 x} = \log_3 3^3$   
 $\Rightarrow \log_3(\frac{x}{9}) \cdot \log_3 x = 3 \log_3 3$

$\Rightarrow \frac{\log(\frac{x}{9})}{\log 3} \cdot \log_3 x = 3 \log 3$   
 $\Rightarrow \frac{a-2b}{6} \cdot a = 3b$   
 $\Rightarrow a^2 - 2ab - 3b^2 = 0$   
 $\Rightarrow (a-3b)(a+b) = 0$   
 $\Rightarrow a-3b=0 \Rightarrow a=3b$   
 $\Rightarrow \log_3 x = 3 \log_3 3$   
 $\Rightarrow x = 3^3 = 27$



021803

54. Z/5'te  $f(x) = 3x + 4$  fonksiyonunun tersi  $f^{-1}(x)$  aşağıdakilerden hangisidir?

What is  $f^{-1}(x)$  inverse of the function in Z/5  
 $f(x) = 3x + 4$ ?

- A)  $x + 3$  **B)  $2x + 2$**  C)  $3x + 4$   
 D)  $2x + 4$  E)  $3x + 2$

$f^{-1}(x) = 3x + 4 \Rightarrow f^{-1}(x) = \frac{1 \cdot x - 4}{3}$   
 $\equiv \frac{6x + 6}{3} \pmod{5}$   
 $\equiv 2x + 2 \pmod{5}$

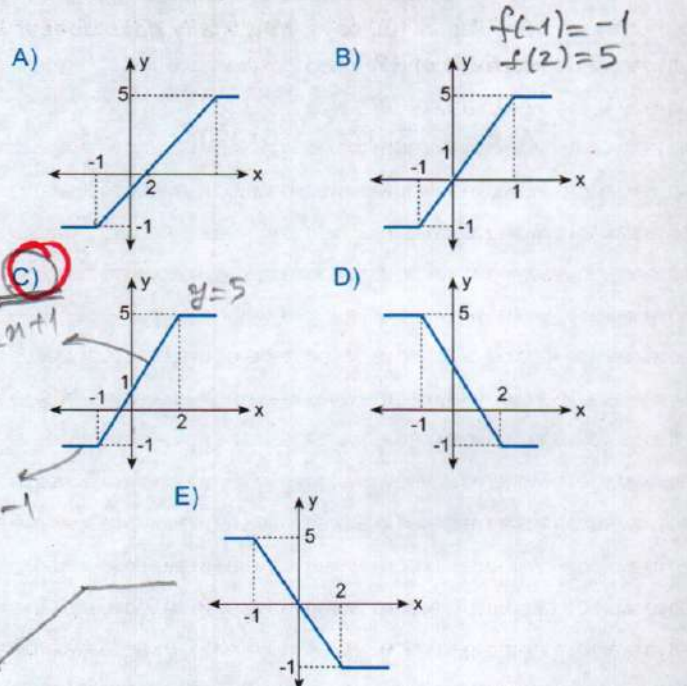
$1+5 \equiv 6 \pmod{5}$   
 $-4+5+5 \equiv 6 \pmod{5}$

021604

56.  $f: \mathbb{R} \rightarrow \mathbb{R}$   
 $f(x) = |x+1| - \sqrt{x^2 - 4x + 4} + 2 = |x+1| - |x-2| + 2$

fonksiyonunun grafiği aşağıdakilerden hangisidir?

What is the graph of  
 $f: \mathbb{R} \rightarrow \mathbb{R}, f(x) = |x+1| - \sqrt{x^2 - 4x + 4} + 2$ ?



57. 4 kg elmayı 15 TL'ye alıp, 3 kg elmayı 18 TL'ye satan bir manav, bu satıştan yüzde kaç kâr etmiştir?

A greengrocer buys 4 kgs of apple for 15 TL and sells 3kgs for 18 TL. How much percent is his profit for this sale?

- A) 70 B) 50 C) 60 D) 65 E) 55

4kg 15TL ; 3kg 18TL  
 → 12kg 45TL (al) ; → 12kg 72TL (sat)

72TL - 45TL = 27TL

4kg 12kg x ⇒ x = 9/4 TL → 9/4 TL kg. başı  
 1kg x ⇒ x = 9/4 TL → 9/4 TL kg. başı  
 → 4kg. da 4 · 9/4 = 9TL kâr.

9TL ?  
 15TL 100 ⇒ ? = 60 kâr.

lim<sub>x→∞</sub>  $\frac{\sqrt{9x^2 - 5x + 1} - 4x + 2}{\sqrt{25x^2 + 4x + 1} - 3x - 5}$  = ? → lim<sub>x→∞</sub>  $\frac{3|x| - 4x}{5|x| - 3x}$

- A) -7/8 B) -5/8 C) -1/8 D) 1/8 E) 7/8

= lim<sub>x→∞</sub>  $\frac{-3x - 4x}{-5x - 3x}$  → lim<sub>x→∞</sub>  $\frac{-7x}{-8x} = \frac{7}{8}$

58. Uygun kümelerde tanımlı f fonksiyonu

$f\left(\frac{x+2}{x-1}\right) = \frac{2x-3}{x+1}$

olarak veriliyor.

$\frac{x+2}{x-1} = -2 \Rightarrow x+2 = -2x+2$   
 $\Rightarrow x+2x = 0$   
 $\Rightarrow x = 0$

$x=0 \Rightarrow f(-2) = \frac{2 \cdot (-2) - 3}{(-2) + 1} = \frac{-4 - 3}{-1} = \frac{-7}{-1} = 7$

Buna göre, f(-2) + f<sup>-1</sup>(3) toplamı kaçtır?

f function defined in appropriate sets is given as

$f\left(\frac{x+2}{x-1}\right) = \frac{2x-3}{x+1}$

What is the sum of f(-2) + f<sup>-1</sup>(3) ? = -3 + 4/7 = -17/7

- A) -19/7 B) -21/5 C) -17/7

- D) -13/5 E) -11/7

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

⇒ x = -6

$f^{-1}(3) = \frac{f(6)+2}{f(6)-1} = \frac{-4}{-7} = \frac{4}{7}$

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

⇒ 2x-3 = 3x+3  
 ⇒ -3-3 = 3x-2x  
 ⇒ x = -6

60. Herkesin İngilizce veya Fransızca dillerinden en az birini bildiği bir sınıfta, iki dili de bilen 6 kişi vardır.

Bu sınıfta İngilizce bilmeyenlerin sayısı, Fransızca bilmeyenlerin sayısının 2 katı olduğuna göre, sınıf mevcudu aşağıdakilerden hangisi olamaz?

Everyone can speak either English or French in a class while six students can speak both of them. Considering the fact that the number of the students who cannot speak English is two times as much as the number of the students who cannot speak French, what cannot the total number of the students be?

- A) 50 B) 15 C) 24 D) 18 E) 39

f = 2, f = 2, f = 2  
 mevcut = f + 6 + f  
 = f + 6 + 2f  
 = 3f + 6  
 = 3(f+2) → 3'ün katı



DENEME-3

$$|x(x-3)| = \begin{cases} x(x-3); & x > 3 \text{ (sağ)} \\ -x(x-3); & 0 \leq x < 3 \text{ (sol)} \\ x(x-3); & x < 0 \end{cases}$$

YÖS / TÖBT

023401  
61.  $\lim_{x \rightarrow 3} \frac{|x^2 - 3x|}{x^2 - 9} = ?$   
A)  $-\infty$  B)  $-1$  C)  $-\frac{1}{2}$

D)  $\frac{1}{2}$  E) Limit yok

sağ ve sola bakılmalıdır  
 $\lim_{x \rightarrow 3^-} \frac{-x(x-3)}{(x-3)(x+3)} \rightarrow \frac{-3}{6} = -\frac{1}{2}$   
 $\lim_{x \rightarrow 3^+} \frac{x(x-3)}{(x-3)(x+3)} \rightarrow \frac{3}{6} = \frac{1}{2}$   
 $\neq \frac{1}{2}$

023406  
62.  $f(x) = \begin{cases} x^2 - 25 & x < -1 \\ 2x - 1 & -1 \leq x < 3 \\ -x^2 - 1 & x \geq 3 \end{cases}$   
 $x_1 = -4, x_2 = 4$   
 $-4 \in (-\infty, -1)$   
problem yok lineer  
 $x_3 = 5 \rightarrow 5 \in [3, \infty)$

fonksiyonunun süreksiz olduğu apsisslerin toplamı kaçtır? Şimdi;  $x = -1$  ve  $x = 3$  noktaları kontrol edilsin.

What is the sum of abscissas in which function is infinite?  
 $f(x) = \begin{cases} x^2 - 25 & x < -1 \\ 2x - 1 & -1 \leq x < 3 \\ -x^2 - 1 & x \geq 3 \end{cases}$   
 $\lim_{x \rightarrow -1^-} f(x) = \lim_{x \rightarrow -1^-} (x^2 - 25) = (-1)^2 - 25 = -24$   
 $\lim_{x \rightarrow -1^+} f(x) = \lim_{x \rightarrow -1^+} (2x - 1) = 2(-1) - 1 = -3$   
 $\neq -3$   
 $x = -1$   
problem !!

$\lim_{x \rightarrow 3} f(x) = \lim_{x \rightarrow 3^+} f(x) = f(3)$   
A)  $-5$  B)  $-2$  C)  $0$  D)  $1$  E)  $5$   
 $\Rightarrow 2 \cdot (3) - 1 = \frac{-3^2 - 1}{3 - 5} = \frac{-10}{-2} = 5$   
 $\Rightarrow 5 = 5$   
Şu halde süreksizlik noktaları:  $-4 + 5 - 1 = 0$

02340701  
62.  $\lim_{x \rightarrow 0} \frac{x \cdot \sin 2x}{\cos x - 1} = ?$   
A) 1 B) 2 C) -2 D) -4 E) 0  
 $\lim_{x \rightarrow 0} \frac{x \cdot \sin 2x}{-2 \sin^2 \frac{x}{2}}$   
 $\frac{\sin \frac{x}{2} \cdot \sin \frac{x}{2}}{1 - 2 \sin^2 \frac{x}{2}}$   
 $\lim_{x \rightarrow 0} \frac{x \cdot \sin 2x}{-2 \sin \frac{x}{2} \cdot \sin \frac{x}{2}}$

$= -\frac{1}{2} \cdot \frac{1}{1/2} \cdot \frac{2}{1/2} = -4$

I. yol  $y'$  korunarak tartılsın.  
 $2x - 2y \cdot y' = 0 \Rightarrow y' = x/y$   
 $x - y \cdot y' = 0$  dan bir kez daha,  
6235026  $x^2 - y^2 = 16 \Rightarrow \frac{d^2y}{dx^2} = ?$   
 $1 - y' \cdot y' - y \cdot y'' = 0$   
 $\Rightarrow 1 - (\frac{x}{y})^2 - y \cdot y'' = 0$   
A)  $\frac{y^2 - x^2}{y}$  B)  $\frac{y^2 - x^2}{y^2}$  C)  $\frac{x^2 - y^2}{y^3}$   
D)  $\frac{-y^2 - x^2}{y^3}$  E)  $\frac{y^2 - x^2}{y^3}$   
 $y'' = \frac{y^2 - x^2}{y^3}$

II. yol  $y^2 = x^2 - 16 \Rightarrow y = \sqrt{x^2 - 16}$   
 $\frac{dy}{dx} = \frac{2x}{2\sqrt{x^2 - 16}} = \frac{x}{\sqrt{x^2 - 16}}$   
 $\frac{d^2y}{dx^2} = \frac{d}{dx} \left( \frac{dy}{dx} \right) = \frac{1 \cdot \sqrt{x^2 - 16} - x \cdot \frac{2x}{2\sqrt{x^2 - 16}}}{x^2 - 16}$   
 $= \frac{x^2 - 16 - x^2}{(x^2 - 16)\sqrt{x^2 - 16}} = \frac{-16}{(x^2 - 16)\sqrt{x^2 - 16}}$   
 $= \frac{-16}{(x^2 - 16)^{3/2}} = \frac{-16}{(x^2 - 16)\sqrt{x^2 - 16}}$

DENEME-3

65. Bir tercümanın, kendisine verilen bir metni çevireceği dile göre ilk 10 sayfası için aldığı sabit ücret ile 10. sayfadan sonraki her bir sayfa için aldığı ücret aşağıdaki tabloda verilmiştir.

Dil	Sabit ücret	Sayfa başı ücret
İngilizce	150 TL	1 TL
Fransızca	180 TL	1,5 TL
Diğer	160 TL	1,2 TL

Buna göre, 50 sayfalık bir metin 3 farklı dile çevrildiğinde ödenecek ücret en az kaç TL olur?

In the table below, the fixed amount a translator charges for the first ten pages and the amount a translator charges per page after ten pages are shown. According to this data, what is the minimum fee to be paid when a text of 50 pages is translated into three different languages?

Language	Sabit ücret	Sayfa başı ücret
English	150 TL	1 TL
French	180 TL	1,5 TL
Other	160 TL	1,2 TL

- A) 638 B) 606 C) 624 D) 630 E) 610

66.  $2A + B = \begin{bmatrix} 4 & -5 \\ 3 & 2 \end{bmatrix}$   
 $A - 2B = \begin{bmatrix} 5 & -10 \\ 8 & 0 \end{bmatrix} \Rightarrow A = ?$

- A)  $\frac{1}{5} \begin{bmatrix} 13 & -20 \\ -14 & 0 \end{bmatrix}$  B)  $\frac{1}{5} \begin{bmatrix} 13 & -20 \\ 14 & 4 \end{bmatrix}$   
 C)  $\frac{1}{5} \begin{bmatrix} -13 & -20 \\ 0 & 14 \end{bmatrix}$  D)  $\frac{1}{5} \begin{bmatrix} -13 & 20 \\ 14 & 0 \end{bmatrix}$   
 E)  $\frac{1}{5} \begin{bmatrix} 13 & 20 \\ 0 & 14 \end{bmatrix}$

$4A + 2B = \begin{bmatrix} 8 & -10 \\ 6 & 4 \end{bmatrix}$   
 $A - 2B = \begin{bmatrix} 5 & -10 \\ 8 & 0 \end{bmatrix}$

$5 \cdot A = \begin{bmatrix} 13 & -20 \\ 14 & 4 \end{bmatrix}$

$\Rightarrow A = \frac{1}{5} \begin{bmatrix} 13 & -20 \\ 14 & 4 \end{bmatrix}$

$|A| = 2 \cdot (-3) - 3 \cdot (-1) = -6 + 3 = -3 \neq 0$  olduğundan A matrisi tersi vardır.

67.  $A = \begin{bmatrix} 2 & 3 \\ -1 & -3 \end{bmatrix}, A^{-1} = \begin{bmatrix} a & b \\ c & d \end{bmatrix} \Rightarrow a + b - c + d = ?$

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

$A^{-1} = \frac{1}{|A|} \begin{bmatrix} -3 & -3 \\ 1 & 2 \end{bmatrix} = -\frac{1}{3} \begin{bmatrix} -3 & -3 \\ 1 & 2 \end{bmatrix} = \begin{bmatrix} 1 & 1 \\ -1/3 & -2/3 \end{bmatrix}$

$a + b - c + d = 1 + 1 + \frac{1}{3} - \frac{2}{3} = \frac{5}{3}$

$E \rightarrow 150 TL + 40 \cdot 1 TL = 190 TL$

$F \rightarrow 180 TL + 40 \cdot 1,5 TL = 240 TL$

$D \rightarrow 160 TL + 40 \cdot 1,2 TL = 208 TL$

$\underline{\underline{638 TL}}$

68.  $f(x) = \sin^2(x^3 + 2x + 3) \Rightarrow f'(0) = ?$

- A)  $2\cos 6$  B)  $4\sin 3$  C)  $2\sin 6$   
 D)  $4\cos 6$  E)  $2\cos 3$

$f'(x) = (3x^2 + 2) \cdot \cos(x^3 + 2x + 3) \cdot 2 \cdot \sin(x^3 + 2x + 3)$

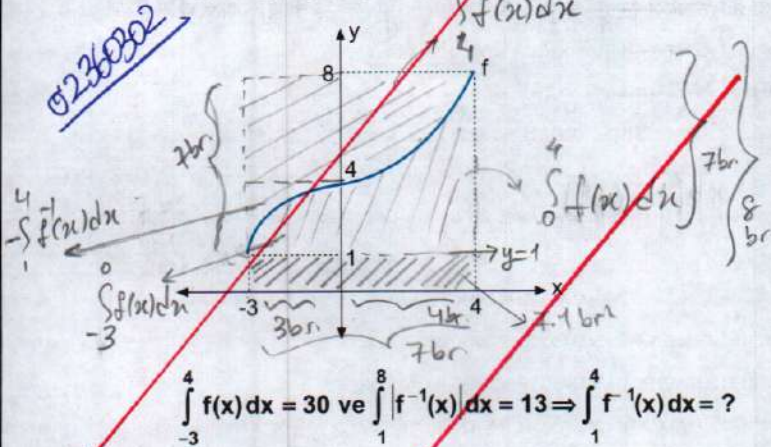
$\Rightarrow f'(0) = 2 \cdot \cos 3 \cdot 2 \cdot \sin 3$

$= \underline{\underline{2\sin 6}}$

DENEME-3

YÖS / TÖBT

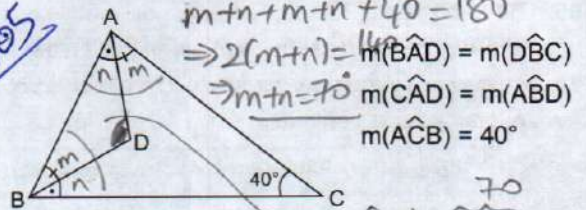
69.  $f: [-3, 4] \rightarrow [1, 8]$



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

HATALI !!

71.

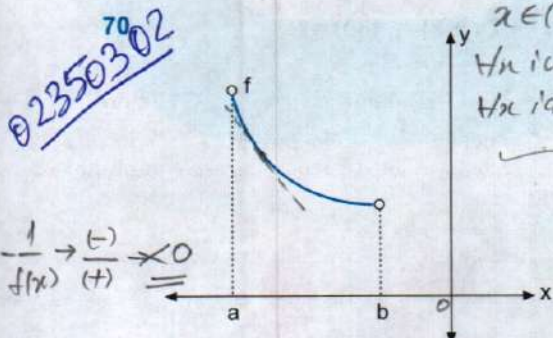


Verilenlere göre,  $m(\hat{A}DB)$  kaç derecedir?

What is  $m(\hat{A}DB)$  according to the data given?

- A) 100 B) 110 C) 120 D) 130 E) 140

02350302

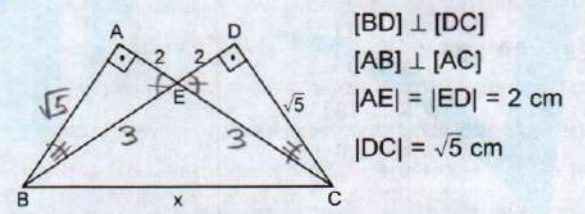


Yukarıdaki grafiğe göre  $x \in (a, b)$  aralığı için aşağıdakilerden hangisi **negatif tanımlı ve artandır**?

According to the graph above, which one is **negatively defined and increasing** for the interval  $x \in (a, b)$ ?

- A)  $\frac{1}{f(x)}$  B)  $f(x) - 2x$  C)  $\frac{-x}{f(x)}$  D)  $f^2(x)$  E)  $\frac{x^3}{f(x)}$
- Handwritten analysis:  $f'(x) < 0$ ,  $f(x) < 0$ ,  $\frac{1}{f(x)} < 0$ ,  $f(x) - 2x > 0$ ,  $\frac{-x}{f(x)} > 0$ ,  $\frac{x^3}{f(x)} > 0$ ,  $f^2(x) > 0$ .

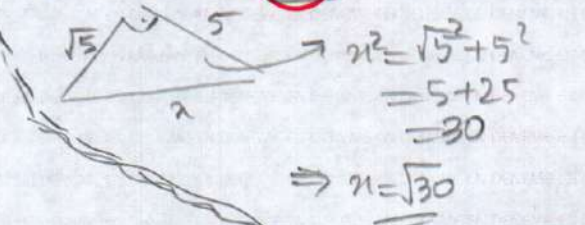
72.



Yukarıdaki verilere göre,  $|BC| = x$  kaç cm'dir?

What is  $|BC| = x$  according to the data given above?

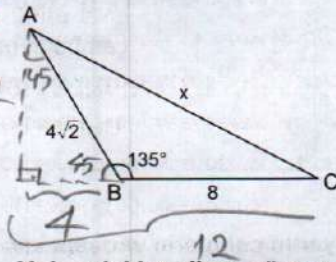
- A) 5 B)  $2\sqrt{7}$  C)  $\sqrt{30}$  D) 6 E)  $2\sqrt{10}$



Handwritten derivation:  $\left(\frac{-x}{f(x)}\right)' = -\frac{1 \cdot f(x) - x f'(x)}{f^2(x)} = -\frac{f(x) - x f'(x)}{f^2(x)}$

73.

03010602



ABC bir üçgen  
 $m(\widehat{ABC}) = 135^\circ$   
 $|AB| = 4\sqrt{2}$  cm  
 $|BC| = 8$  cm  
 $|AC| = x$

Yukarıdaki verilere göre, x kaç cm'dir?

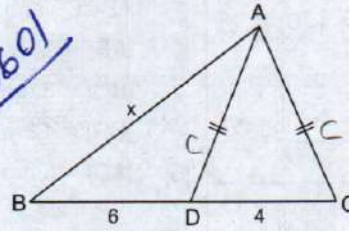
ABC is a triangle. How many cm is "x" according to the data given above?

- A)  $2\sqrt{6}$  B)  $4\sqrt{2}$  C) 6 D)  $2\sqrt{10}$  E)  $4\sqrt{10}$

$x^2 = 4^2 + 12^2$   
 $= 16 + 144$   
 $= 160 \Rightarrow x = 4\sqrt{10}$

75.

03010601



ABC bir üçgen  
 $|AD| = |AC|$   
 $|BD| = 6$  cm  
 $|CD| = 4$  cm  
 $|AB| = x$

Yukarıdaki verilere göre, x'in en küçük tam sayı değeri kaç cm'dir?

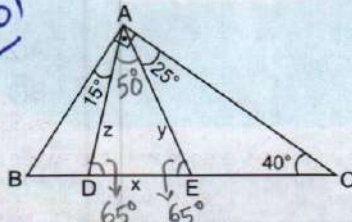
ABC is a triangle. How many cm is the minimum integer value of x according to the data given above?

- A) 9 B) 10 C) 11 D) 12 E) 14

$|c-6| < x < c+6$   
 $10 < 4 < c+6$   
 $10 < 4 + c$   
 $6 < c$   
 $|x-6| < c < x+6$   
 $2 < c$   
 Bir an:  $c=2$  olsun.  
 $|x-6| = 2 \Rightarrow x=8, x=4$   
 $2 < c$  olduğunda  $x > 4$   
 $x_{min} = 5$

74.

03010601



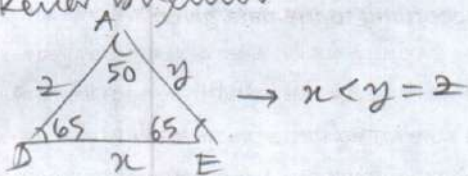
ABC bir üçgen  
 $m(\widehat{BAC}) = 90^\circ$   
 $m(\widehat{BAD}) = 15^\circ$   
 $m(\widehat{CAE}) = 25^\circ$   
 $m(\widehat{ACB}) = 40^\circ$

Verilenlere göre x, y, z arasındaki bağıntı nedir?

ABC is a triangle. What is the relation among x, y and z according to the data given above?

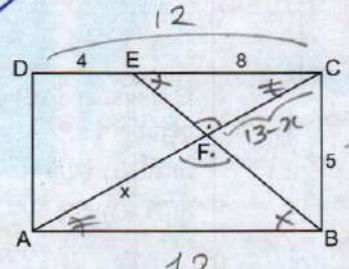
- A)  $x > y > z$  B)  $x = y > z$  C)  $x < y = z$   
 D)  $x < y < z$  E)  $x > y = z$

Büyük açı karşısında büyük kenar bulunur



76.

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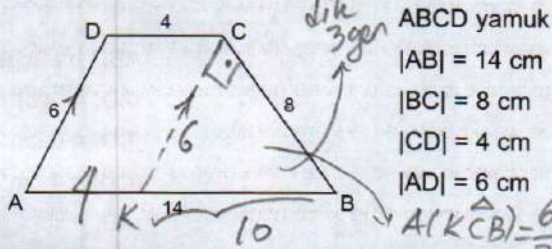
ABCD dikdörtgen  
 $|DE| = 4$  cm  
 $|EC| = 8$  cm  
 $|BC| = 5$  cm  
 $|AC|^2 = 5^2 + 12^2$   
 $|AC| = 13$   
 3gen

Verilenlere göre,  $|AF| = x$  kaç cm'dir?  
 ABCD is a rectangle. How many cm is  $|AF| = x$  according to the data given above?

- A)  $\frac{13}{5}$  B)  $\frac{26}{5}$  C)  $\frac{39}{5}$  D) 9 E)  $\frac{49}{5}$

$FEC \sim FBA$  dir  
 $\frac{|FE|}{|FB|} = \frac{|EC|}{|BA|} = \frac{|FC|}{|FA|}$   
 $\frac{2}{12} = \frac{13-x}{x}$   
 $2x = 39 - 3x$   
 $5x = 39$   
 $x = 39/5$

77.

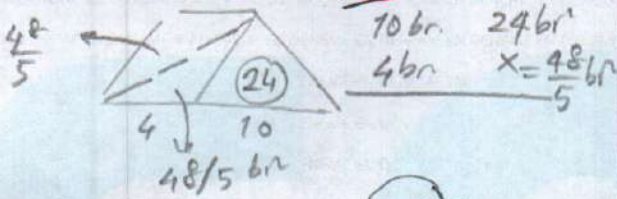


ABCD yamuk  
|AB| = 14 cm  
|BC| = 8 cm  
|CD| = 4 cm  
|AD| = 6 cm

Yukarıdaki verilere göre,  $A(ABCD)$  kaç  $cm^2$  dir?

ABCD is a trapezoid. How many square cm is  $A(ABCD)$  according to the data given above?

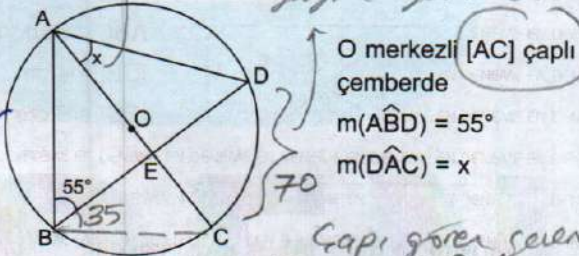
- A)  $\frac{54}{5}$  B)  $\frac{105}{8}$  C) 54 D)  $\frac{216}{5}$  E) 108



$\Rightarrow A(ABCD) = \frac{48}{5} + \frac{48}{5} + 24 = \frac{216}{5}$  br

Aynı yayı gören  
severer açıları  
birbirine eşittir  
severer açı gördüğü  
yayın yarısıdır

78.



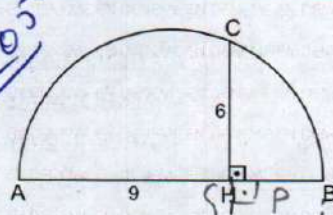
O merkezli [AC] çaplı  
çemberde  
 $m(\widehat{ABD}) = 55^\circ$   
 $m(\widehat{DAC}) = x$

Verilenlere göre, x kaç derecedir?

$m(\widehat{ABD}) = 55^\circ$ ,  $m(\widehat{DAC}) = x$  on a circle whose diameter is [AC] and whose center is O. How many degrees is x according to the data given above?

- A) 20 B) 25 C) 30 D) 35 E) 40

79.

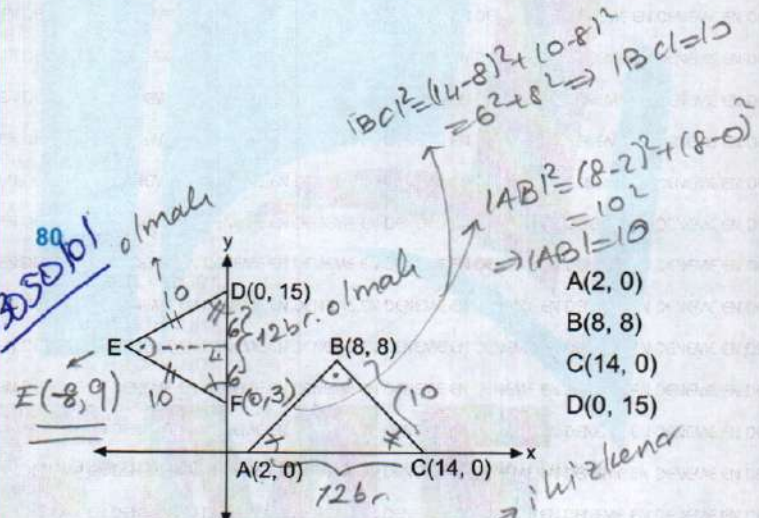


[AB] yarım  
çemberin çapı  
[CH]  $\perp$  [AB]  
|CH| = 6 cm  
|AH| = 9 cm

Verilenlere göre, yarım çemberin yarıçapı kaç cm dir?

[AB] is the radius of the semicircle. How many cm is the radius of the semicircle according to the data given?

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

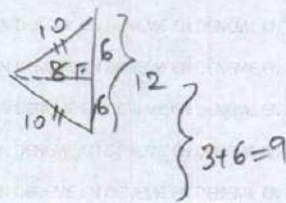


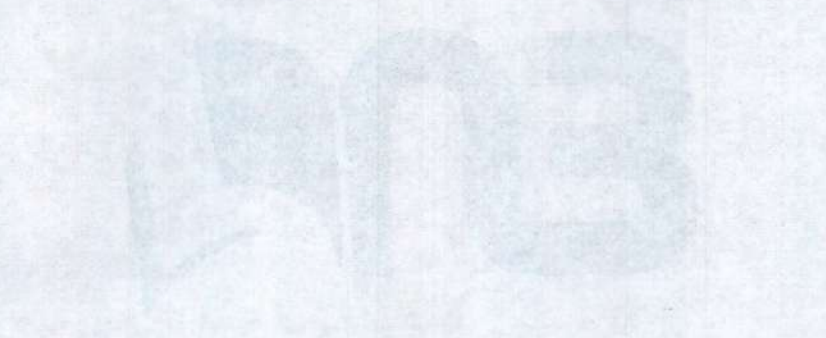
Yukarıdaki analitik düzlemde ACB üçgeni ile FDE üçgeni eşitir.

Verilenlere göre, E noktasının koordinatı aşağıdakilerden hangisidir?

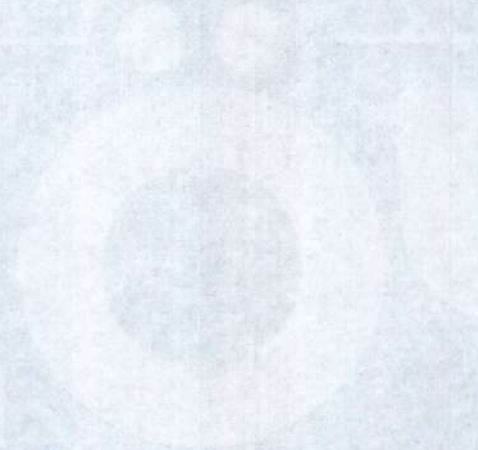
"ACB" and "FDE" are equilateral triangles on the coordinate plane. What are the coordinates of E point according to the data given?

- A) (-10, 6) B) (-6, 9) C) (-8, 6)  
D) (-6, 8) E) (-8, 9)





1130 1000



1130 1000

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