1)

$$\left(0,2\overline{9}+\frac{1}{1,\overline{6}+3\frac{1}{3}}\right)^{-2}:2=?$$

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

2)

$$\frac{326+\frac{12}{13}}{164-\frac{7}{13}}=?$$

A)1 B)$\frac{12}{7}$ C)$\frac{24}{13}$ D)2 E)$\frac{15}{7}$

3)

$$(4-0,3)+(4-3,93)+(4-3,993)+(4-3,9993)+...=?$$

A) $\frac{91}{3}$ B) $\frac{43}{3}$ C)$\frac{34}{9}$ D) $\frac{17}{3}$ E)$\frac{19}{9}$

4)

$$3+\frac{24}{7+\frac{15}{1+\frac{1}{x}}}=5$$

$\Rightarrow x=?$

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

5)

$$A=3+\frac{20}{1+\frac{20}{1+\frac{20}{\vdots}}}$$

$\Rightarrow A=?$

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

6)

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

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

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

7)

$x+y+z=12$

$\Rightarrow x,yz+y,zx+z,xy=?$

A)11,34 B)12,32 C)13,02
D)13,32 E)14,56

8)

$$\frac{(0,49).(0,12)}{(0,84).(0,005).(0,07)}=a.10^{b}$$

$\Rightarrow a+b=?$

A)-2 B)11 C)1 D)4 E)6

9)

$a,b,c \in Z^+$

$\frac{18}{7} = a - \frac{1}{b - \frac{2}{c}}$

$\Rightarrow a+b+c = ?$

A) 7 B) 8 C) 9 D) 10 E) 11

10)

$3,\overline{13} < a,bcd < 3,1\overline{3}$

Olduğuna göre, d nin alabileceği farklı değerler toplamı kaçtır?

What is the sum of the different values that d can take?

A) 2 B) 3 C) 5 D) 7 E) 8

11)

$a = \frac{19}{17}$, $b = \frac{13}{10}$, $c = \frac{9}{8}$

$\Rightarrow ? < ? < ?$

A) $a < c < b$ B) $b < c < a$ C) $b < a < c$

D) $c < b < a$ E) $c < a < b$

12)

$a^2 < a$, $x = -\frac{4a}{3}$, $y = -\frac{2a}{7}$, $z = -\frac{5a}{4}$

$\Rightarrow ? < ? < ?$

A) $x < y < z$ B) $y < x < z$ C) $z < y < x$

D) $x < z < y$ E) $y < z < x$

13)

$\frac{3}{4} < x < \frac{5}{6}$

$\Rightarrow x = ?$

A) $\frac{7}{12}$ B) $\frac{31}{48}$ C) $\frac{17}{24}$ D) $\frac{71}{96}$ E) $\frac{39}{48}$

14)

$5 - \frac{3}{7 - \frac{13}{x+2}} = \frac{8x+23}{7x+1}$

$\Rightarrow x = ?$

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

15)

$$\frac{\frac{5}{13}-\frac{11}{23}+\frac{13}{33}}{\frac{3}{13}-\frac{47}{23}+\frac{40}{33}}=?$$

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

16)

$$\frac{1}{x}+\frac{3}{x}+\frac{5}{x}+...+\frac{19}{x}$$

toplamını pozitif tam sayı yapan x tam sayıları kaç tanedir?
How many integers x make their sum a positive integer?

A) 18 B) 15 C) 12 D) 9 E) 6

17)

$$\frac{4}{37}+\frac{3}{11}+\frac{23}{99}=0,abcdef$$
$$\Rightarrow a+b+c+d+e+f=?$$

A) 16 B) 18 C) 19 D) 21 E) 24

18)

$$\left(1-\frac{1}{x}\right)+\left(2-\frac{2}{x}\right)+\left(3-\frac{3}{x}\right)+...+\left(9-\frac{9}{x}\right)=30$$
$$\Rightarrow x=?$$

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

19)

$$\frac{1}{20.21}+\frac{1}{21.22}+\frac{1}{22.23}+\frac{1}{23.24}+...+\frac{1}{99.100}=?$$

A) $\frac{1}{20}$ B) 1 C) $\frac{1}{25}$ D) $\frac{1}{100}$ E) $\frac{1}{10}$

20)

$$\frac{1}{2}+\frac{2}{3}+\frac{3}{4}+...+\frac{9}{10}=x$$
$$\Rightarrow \frac{3}{2}+\frac{7}{12}+\frac{11}{30}+...+\frac{19}{90}=?$$

A) $20-x$ B) $10-x$ C) $x-20$
D) $x-10$ E) x

21)

$A=\frac{1}{4}+\frac{1}{9}+\frac{1}{16}+\frac{1}{25}+...$

$\Rightarrow \frac{1}{4}+\frac{1}{16}+\frac{1}{36}+\frac{1}{64}+...=?$

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

22)

$a \in Z^+$

$\left(1-\frac{1}{4}\right)\left(1-\frac{1}{9}\right)...\left(1-\frac{1}{a^2}\right)<\frac{50}{99}$

$\Rightarrow \min(a)=?$

A) 40 B) 98 C) 99 D) 100 E) 101

23)

$$a+\cfrac{6}{a+1+\cfrac{6}{a+1+\cfrac{6}{\vdots}}}=5$$

$\Rightarrow a=?$

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

24)

$a,b,c \in Z^+$

$a<b<c$

$\frac{1}{a}+\frac{1}{b}+\frac{1}{c}=1$

$\Rightarrow a+b+c=?$

A) 2 B) 4 C) 6 D) 9 E) 11

25)

$a,b \in N$

$\frac{1}{2!}+\frac{2}{3!}+\frac{3}{4!}+...+\frac{99}{100!}=1-\frac{a!}{b!}$

$\Rightarrow \min(a+b)=?$

A) 99 B) 100 C) 101 D) 102 E) 103

26)

$x,y \in N$

$5x+8y=160$

eşitliğini sağlayan kaç farklı (x,y) sıralı ikilisi yazılabilir?

How many different (x,y) can be written that satisfy the equation?

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

27)

$a, b \in Z$

$a\sqrt{3} + b\sqrt{3} = 2a - b - 9$

$\Rightarrow a.b = ?$

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

28)

$a, b \in Z^+$

$a.b = 15(a + b)$

$\Rightarrow \max(a - b) = ?$

A) 72 B) 96 C) 144 D) 224 E) 240

29)

(2ab) üç basamaklı, (c3) iki basamaklı sayılardır.

$$\begin{array}{r} 2\,a\,b \\ \times\quad c\,3 \\ \hline 7\bullet\bullet \\ +\ 5\bullet\bullet \\ \hline e\,d\,1\,1 \end{array}$$

$\Rightarrow e + d = ?$

A) 9 B) 10 C) 11 D) 12 E) 13

30)

$x = 4!.8!$ $y = 5!.7!$ $z = (6!)^2$

$\Rightarrow ? < ? < ?$

A) $x > y > z$ B) $x > z > y$ C) $y > x > z$
D) $y > z > x$ E) $z > x > y$

31)

$A = (xyz) > 500$

$A = 8a + 3 = 12b + 3 = 15c + 3$

$\Rightarrow x + y + z = ?$

A) 9 B) 10 C) 11 D) 12 E) 13

32)

$(23,01)_5 = (x)_{10} \Rightarrow x = ?$

A) $\frac{326}{25}$ B) $\frac{314}{25}$ C) $\frac{233}{25}$ D) $\frac{108}{25}$ E) $\frac{1}{5}$

33)

$\frac{103}{9} = (x)_3 \Rightarrow x = ?$

A) $(102,11)_3$ B) $(12,11)_3$ C) $(11,21)_3$
D) $(111,01)_3$ E) $(1,02)_3$

34)

$(130)_5.(32)_5 = (x)_5 \Rightarrow x = ?$

A)11011 B)12012 C)10210
D)10012 E)11122

35)

$\frac{(5233)_6}{(35)_6} = (x)_6 \Rightarrow x = ?$

A)113 B)123 C)125 D)132 E)143

36)

$(163)_7 < (abc)_5 < (165)_7$
$\Rightarrow a + b + c = ?$

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

37)

$n \in \mathbb{Z}^+$
$(3n^4 + 6n^2 + 4)_{n^2+1} = ?$

A)301 B)310 C)311
D)321 E)302

38)

$a, b, c \in \mathbb{Z}^+$
$8! - 6!.2 = 2^a.3^b.5^c$
$\Rightarrow a + b + c = ?$

A)7 B)8 C)9 D)10 E)11

39)

$x = 6! + 7!$
$y = 7! + 8!$
$\Rightarrow EKOK(x, y) = ?$

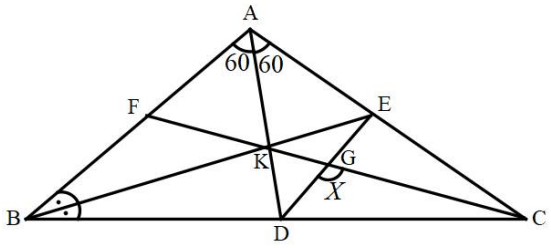
A)7! B)5.7! C)8! D)9! E)10!

40)

$a, b, c \in \mathbb{Z}^-$
$a.b = 18$
$a.c = 12$
$\Rightarrow \max(c + b - a) = ?$

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

41)



$[BE]$ Açıortay(Bisector)

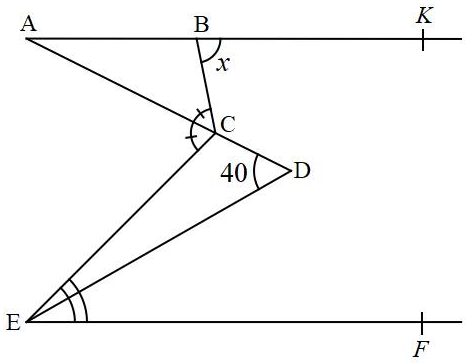
$m(\widehat{BAD}) = 60°$ $m(\widehat{DAC}) = 60°$

$[CF] \cap [DE] = \{G\}$

$\Rightarrow m(\widehat{DGC}) = x = ?$

A) 100 B) 115 C) 120 D) 130 E) 150

42)



AK // EF

$m(\widehat{CED}) = m(\widehat{DEF})$

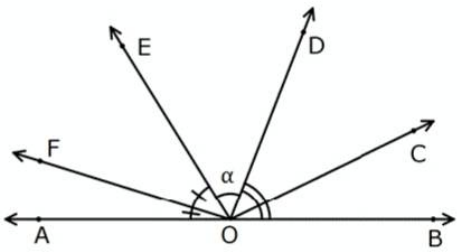
$m(\widehat{BCA}) = m(\widehat{ACE})$

$m(\widehat{ADE}) = 40^\circ$

$\Rightarrow m(\widehat{CBK}) = x = ?$

A) 88 B) 86 C) 84 D) 82 E) 80

43)



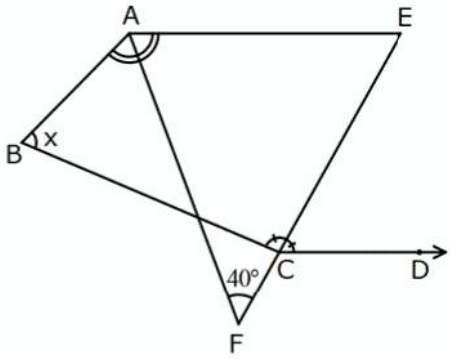
$[OC]$ ve $[OF]$ Açıortay(Bisector)

$m(\widehat{COF}) = 122^\circ$

$\Rightarrow m(\widehat{DOE}) = \alpha = ?$

A) 52 B) 56 C) 62 D) 64 E) 72

44)



AE // CD

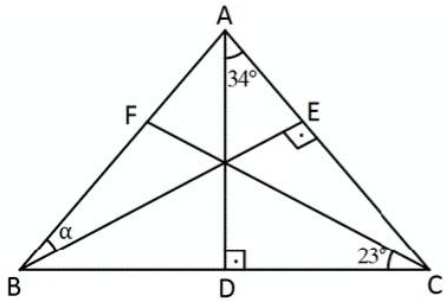
$[CE]$ ve $[AF]$ Açıortaylar(Bisectors)

$m(\widehat{AFE}) = 40^\circ$

$\Rightarrow m(\widehat{ABC}) = x = ?$

A) 76 B) 78 C) 80 D) 82 E) 84

45)



$BE \perp AC \qquad AD \perp BC$

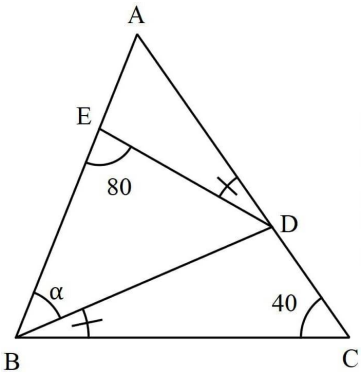
$m\left(\widehat{DAC}\right) = 34^\circ$

$m\left(\widehat{FCB}\right) = 23^\circ$

$\Rightarrow m\left(\widehat{ABE}\right) = \alpha = ?$

A) 30 B) 33 C) 36 D) 45 E) 57

46)



$m\left(\widehat{ADE}\right) = m\left(\widehat{DBC}\right)$

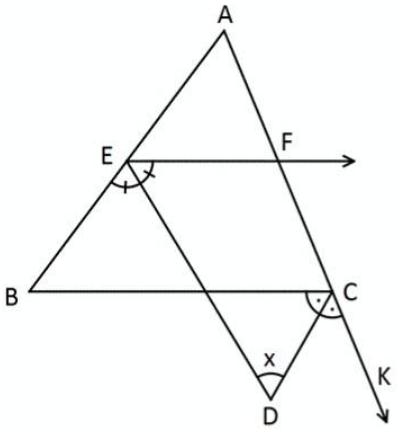
$m\left(\widehat{ACB}\right) = 40^\circ$

$m\left(\widehat{BED}\right) = 80^\circ$

$\Rightarrow m\left(\widehat{ABD}\right) = \alpha = ?$

A) 20 B) 40 C) 60 D) 70 E) 80

47)



$[ED]$ ve $[CD]$ açıortay $(Bisector)$

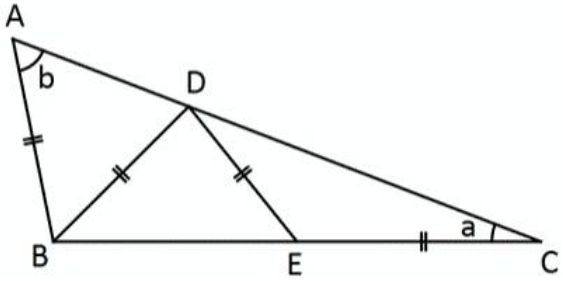
$[EF] // [BC]$

$m\left(\widehat{BAK}\right) = 50^\circ$

$\Rightarrow m\left(\widehat{EDC}\right) = x = ?$

A) 60 B) 65 C) 70 D) 75 E) 80

48)



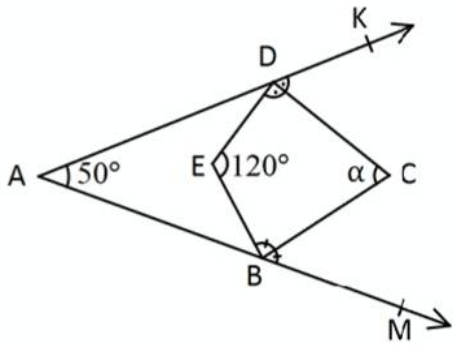
$|AB| = |BD| = |DE| = |EC|$

$m\left(\widehat{ACB}\right) = a, m\left(\widehat{BAC}\right) = b$

$\Rightarrow \frac{b}{a} = ?$

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

49)



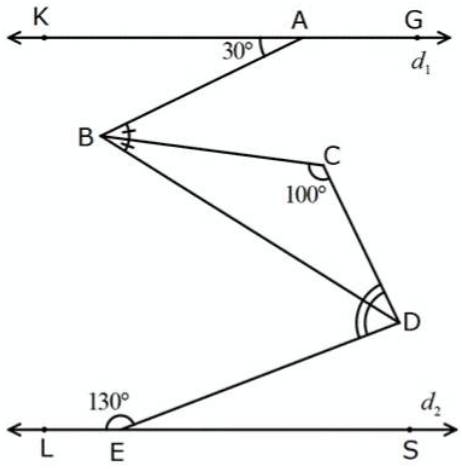
$m\left(\widehat{KAM}\right)=50^{\circ}, m\left(\widehat{DEB}\right)=120^{\circ}$

$m\left(\widehat{EDC}\right)=m\left(\widehat{CDK}\right), m\left(\widehat{MBC}\right)=m\left(\widehat{CBE}\right)$

$\Rightarrow m\left(\widehat{DCB}\right)=\alpha=?$

A) 95 B) 100 C) 116 D) 120 E) 125

50)



$[BC]$ ve $[DB]$ açıortay$(Bisector)$

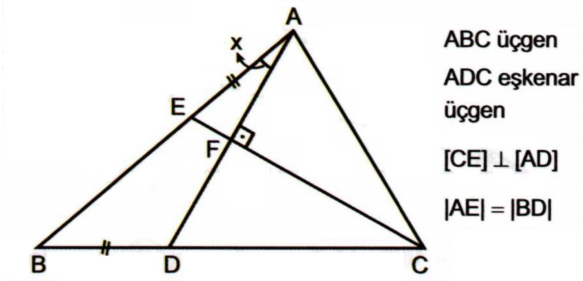
$d_1 // d_2$

$m\left(\widehat{KAB}\right)=30°, m\left(\widehat{BCD}\right)=100°, m\left(\widehat{DEL}\right)=130°$

$\Rightarrow m\left(\widehat{CDE}\right)=?$

A) 140 B) 130 C) 120 D) 100 E) 90

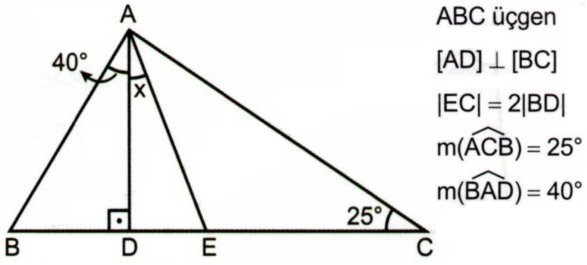
51)



$\Rightarrow m(\widehat{BAD})=x=?$

A)10 B)15 C)20 D)25 E)30

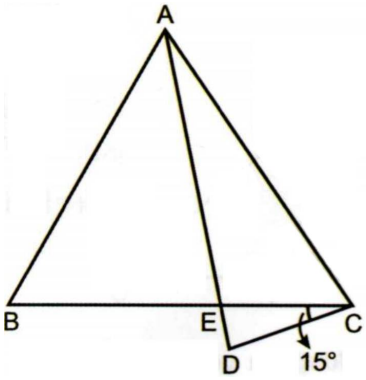
52)



$\Rightarrow m(\widehat{DAE})=x=?$

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

53)

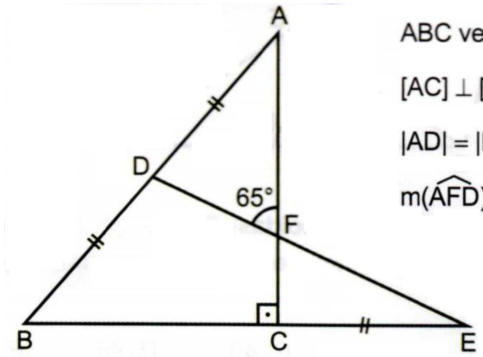


ABC üçgen
$|AB| = |AD| = |AC|$
$m(\widehat{BCD}) = 15°$

$\Rightarrow m(\widehat{BAD}) = x = ?$

A) 15 B) 20 C) 25 D) 30 E) 35

54)

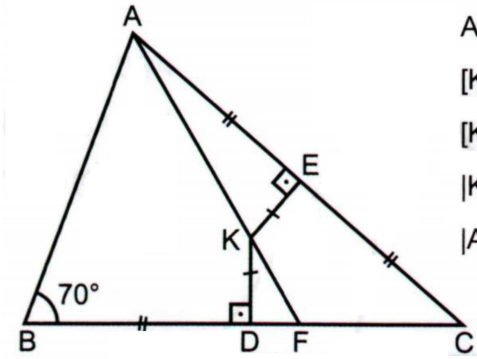


ABC ve BDE üçgen
$[AC] \perp [BE]$
$|AD| = |BD| = |CE|$
$m(\widehat{AFD}) = 65°$

$\Rightarrow m(\widehat{BAC}) = x = ?$

A) 35 B) 40 C) 45 D) 50 E) 55

55)

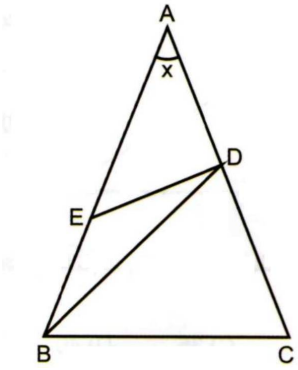


ABC üçgen
$[KD] \perp [BC]$
$[KE] \perp [AC]$
$|KD| = |KE|$
$|AE| = |EC| = |BD|$

$\Rightarrow m(\widehat{AFB}) = x = ?$

A) 60 B) 65 C) 70 D) 75 E) 80

56)

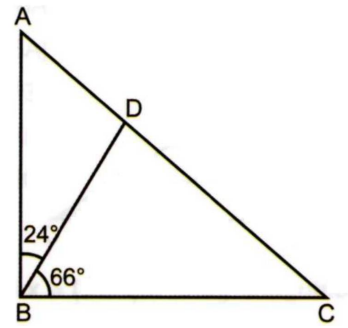


ABC üçgen
$|AB| = |AC|$
$|BC| = |BD|$
$|BE| = |ED|$

$m(\widehat{BAD}) = x \Rightarrow m(\widehat{BED}) = ?$

A) $2x$ B) $x + 90$ C) $3x$ D) $x + 120$ E) $4x$

57)



ABC üçgen

$|AD| < |DC|$

$|AC| = 2|BD|$

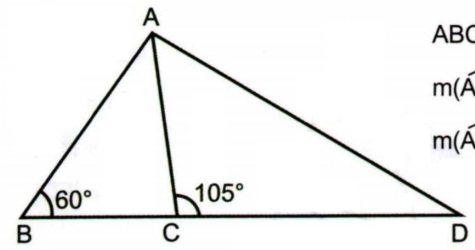
$m(\widehat{ABD}) = 24°$

$m(\widehat{DBC}) = 66°$

$\Rightarrow m(\widehat{ACB}) = x = ?$

A) 24 B) 38 C) 42 D) 48 E) 52

58)



ABC üçgen

$m(\widehat{ABC}) = 60°$

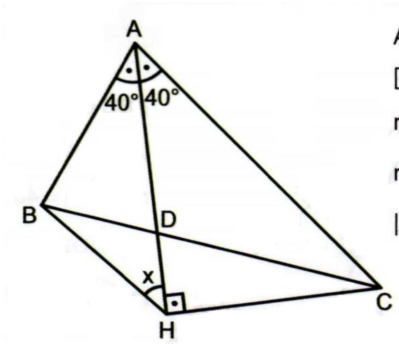
$m(\widehat{ACD}) = 105°$

$|AD| = |AB| + |BC|$

$\Rightarrow m(\widehat{CAD}) = ?$

A) 25 B) 30 C) 35 D) 40 E) 45

59)



ABC üçgen

$[AH] \perp [HC]$

$m(\widehat{BAH}) = 40°$

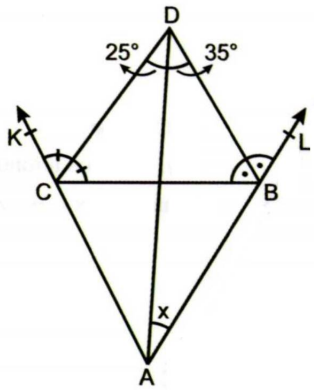
$m(\widehat{HAC}) = 40°$

$|AC| = |AB| + |HC|$

$\Rightarrow x = ?$

A) 25 B) 30 C) 35 D) 40 E) 45

60)



$\Rightarrow x = ?$

A) 25 B) 30 C) 35 D) 40 E) 45