

فصل ۱ هندسه (پیشرفته)

خطوط موازی و مورب (زاویه ها)

Chapter 1 Geometry

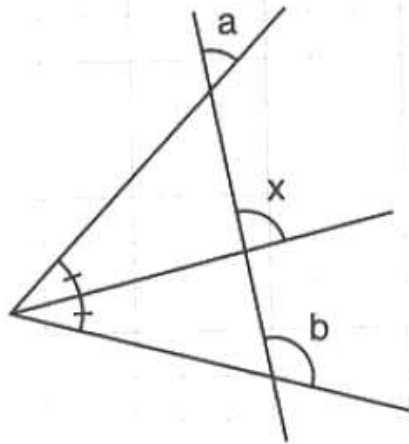
Parallel lines intersected by a transversal

سپهر اشتری

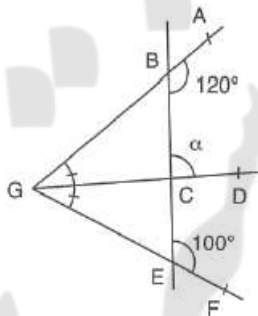
s13200670r@gmail.com

ساختار خاص ۱

تا اینجا ۹۹٪ مطالب رو یاد گرفتید...

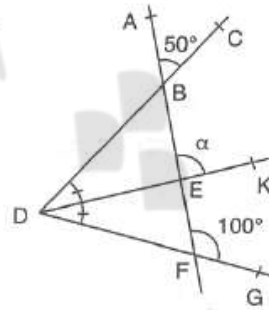


$$x = (a+b)/2$$



$$\begin{aligned} m(\widehat{ABE}) &= 120^\circ \\ m(\widehat{BEF}) &= 100^\circ \\ m(\widehat{AGD}) &= m(\widehat{DGF}) \\ \Rightarrow m(\widehat{BCD}) &= \alpha = ? \end{aligned}$$

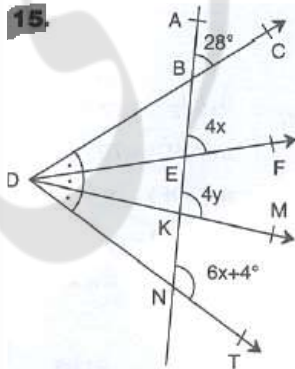
- A) 110 B) 100 C) 80 D) 60 E) 50



$$\begin{aligned} m(\widehat{ABC}) &= 50^\circ \\ m(\widehat{AFG}) &= 100^\circ \\ m(\widehat{CDK}) &= m(\widehat{KDG}) \\ \Rightarrow m(\widehat{AEK}) &= \alpha = ? \end{aligned}$$

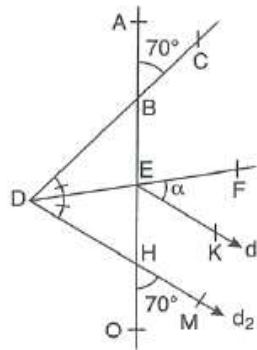
- A) 60 B) 70 C) 75 D) 80 E) 85

15.



$$\begin{aligned} m(\widehat{CDF}) &= m(\widehat{FDM}) = m(\widehat{MDT}) \\ m(\widehat{ABC}) &= 28^\circ \\ m(\widehat{AEF}) &= 4x \\ m(\widehat{AKM}) &= 4y \\ m(\widehat{ANT}) &= 6x + 4^\circ \\ \Rightarrow y &= ? \end{aligned}$$

- A) 10 B) 11 C) 12 D) 13 E) 14

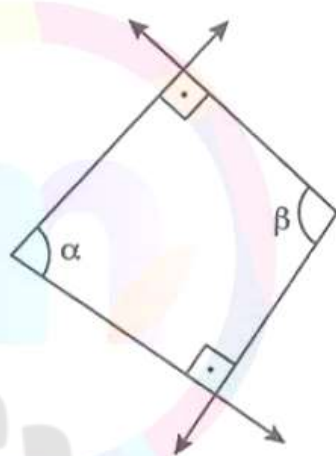


$$\begin{aligned} d_1 // d_2 \\ m(\widehat{ABC}) &= 70^\circ \\ m(\widehat{MHO}) &= 70^\circ \\ m(\widehat{CDF}) &= m(\widehat{FDB}) \\ \Rightarrow m(\widehat{FEK}) &= \alpha = ? \end{aligned}$$

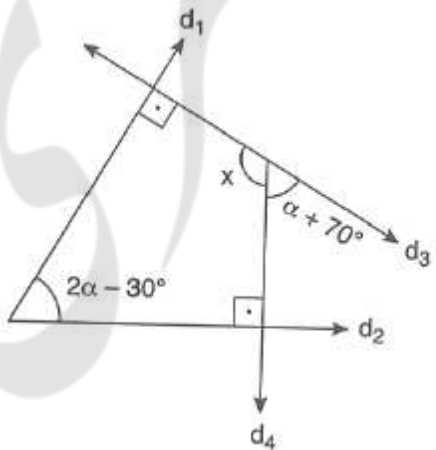
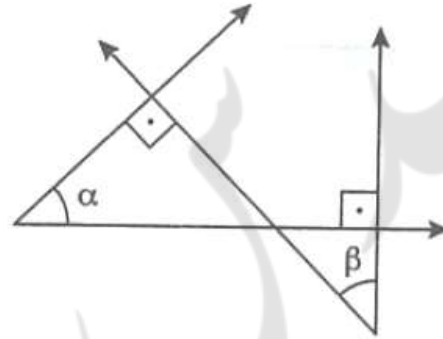
- A) 10 B) 20 C) 30 D) 50 E) 70

ساختار خاص ۲

$$\alpha + \beta = 180$$



$$\alpha = \beta$$



$$\Rightarrow x = ?$$

$$m(\widehat{BDE}) = 90^\circ,$$

$$m(\widehat{CKB}) = 90^\circ,$$

$$m(\widehat{ABK}) = 136^\circ$$

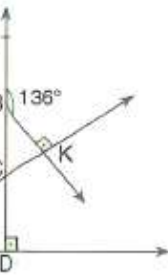
$$\Rightarrow x = ?$$

A) 46°

D) 36°

B) 44°

E) 34°



C) 42°

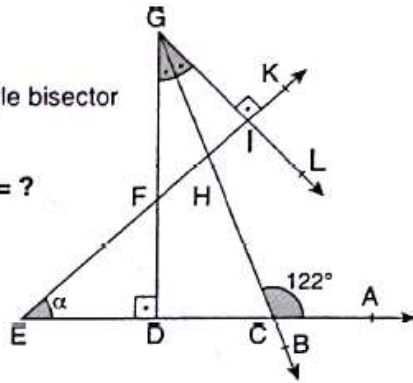
$[GD] \perp [EA]$

$[GL] \perp [EK]$

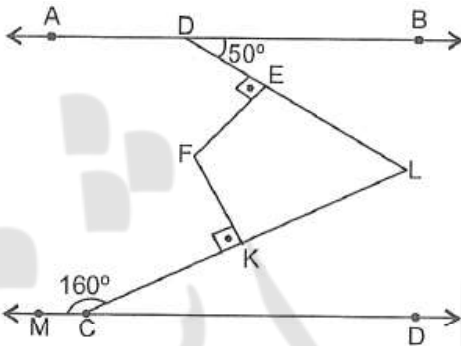
$[GB]$ açıortay / angle bisector

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

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



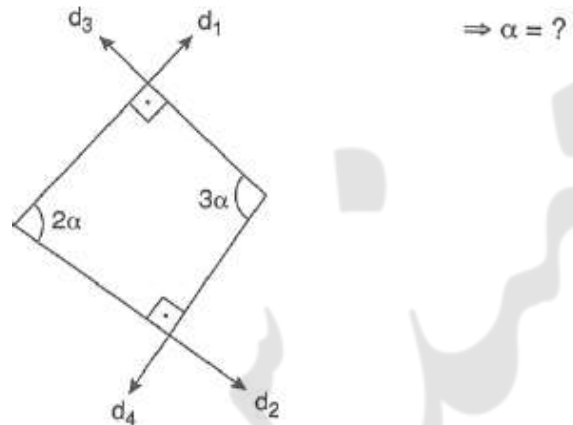
- A) 64° B) 63° C) 62° D) 61° E) 60°



$AB \parallel MD$, $[FE] \perp [DL]$, $[FK] \perp [CL]$,

$m(\widehat{MCL}) = 160^\circ$, $m(\widehat{BDL}) = 50^\circ \Rightarrow m(\widehat{EFK}) = ?$

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



$[GH] \parallel [CA]$

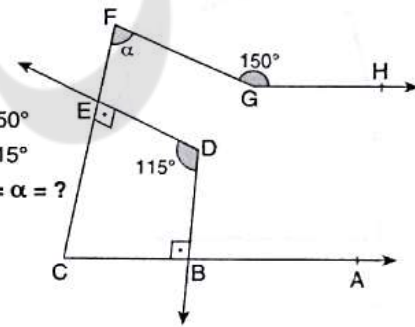
$[DE] \perp [CF]$

$[DB] \perp [CA]$

$m(\widehat{FGH}) = 150^\circ$

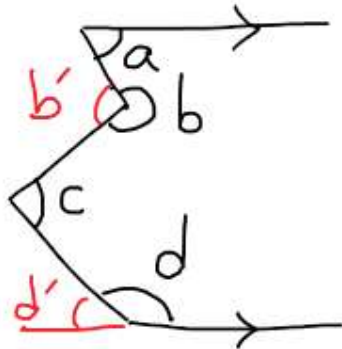
$m(\widehat{EDB}) = 115^\circ$

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



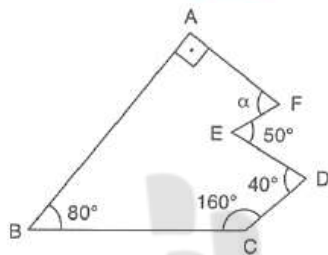
- A) 65° B) 70° C) 75° D) 80° E) 85°

ساختار U تعمیم یافته



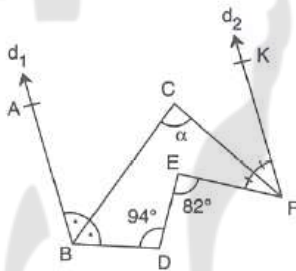
U رابطه : $a+b+c+d = 3 \times 180 = 540$

Σ رابطه : $a+c = b'+d'$



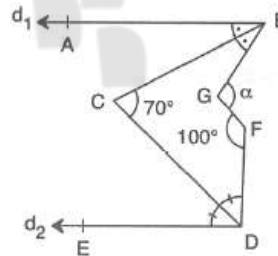
- $m(\widehat{EDC}) = 40^\circ$
- $m(\widehat{ABC}) = 80^\circ$
- $m(\widehat{FED}) = 50^\circ$
- $m(\widehat{BCD}) = 160^\circ$
- $[FA] \perp [AB]$
- $\Rightarrow m(\widehat{AFE}) = \alpha = ?$

- A) 40 B) 50 C) 60 D) 70 E) 80



- $d_1 // d_2$
- $m(\widehat{BDE}) = 94^\circ$
- $m(\widehat{DEF}) = 82^\circ$
- $m(\widehat{ABC}) = m(\widehat{CBD})$
- $m(\widehat{KFC}) = m(\widehat{CFE})$
- $\Rightarrow m(\widehat{BCF}) = \alpha = ?$

- A) 80 B) 82 C) 84 D) 86 E) 90

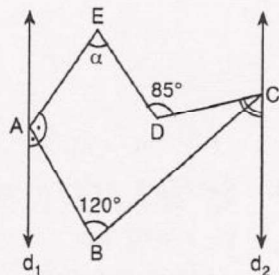


- $d_1 // d_2$
- $m(\widehat{ABC}) = m(\widehat{CBG})$
- $m(\widehat{FDC}) = m(\widehat{CDE})$
- $m(\widehat{GFD}) = 100^\circ$
- $m(\widehat{BCD}) = 70^\circ$
- $\Rightarrow m(\widehat{BGF}) = \alpha = ?$

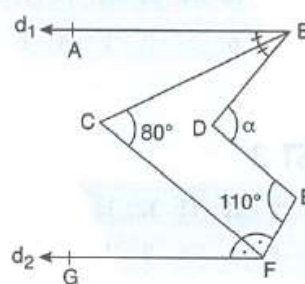
- A) 30 B) 35 C) 45 D) 55 E) 60

Şekilde $d_1 // d_2$,

- $m(\widehat{EDC}) = 85^\circ$ ve
- $m(\widehat{ABC}) = 120^\circ$ ise
- $m(\widehat{AED}) = \alpha$ kaç derecedir?

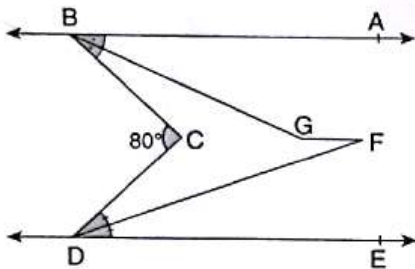


- A) 15 B) 20 C) 25 D) 30 E) 35



- $d_1 // d_2$
- $m(\widehat{BCF}) = 80^\circ$
- $m(\widehat{DEF}) = 110^\circ$
- $m(\widehat{ABC}) = m(\widehat{CBD})$
- $m(\widehat{EFC}) = m(\widehat{CFG})$
- $\Rightarrow m(\widehat{BDE}) = \alpha = ?$

- A) 60 B) 70 C) 80 D) 90 E) 100



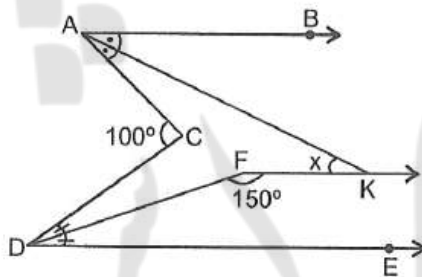
$BA \parallel [GF] \parallel DE$. $m(\widehat{BCD}) = 80^\circ$

$[BG]$ ve $[DF]$ açıortaydır.

$[BG]$ and $[DF]$ are angle bisectors.

$\Rightarrow m(\widehat{GFD}) + m(\widehat{ABG}) = ?$

- A) 20° B) 40° C) 60° D) 80° E) 100°



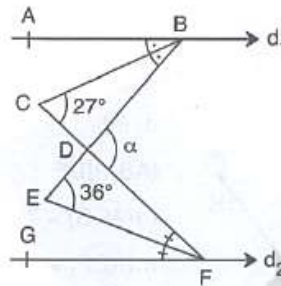
$[AB] \parallel [FK] \parallel [DE]$, $m(\widehat{CAK}) = m(\widehat{KAB})$

$m(\widehat{CDF}) = m(\widehat{FDE})$, $m(\widehat{ACD}) = 100^\circ$,

$m(\widehat{DFK}) = 150^\circ \Rightarrow m(\widehat{AKF}) = x = ?$

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

سیگمای پیشرفته



$d_1 \parallel d_2$

$m(\widehat{ABC}) = m(\widehat{CBE})$

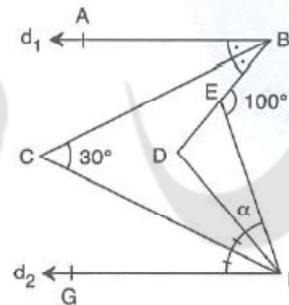
$m(\widehat{CFE}) = m(\widehat{EFG})$

$m(\widehat{BCF}) = 27^\circ$

$m(\widehat{BEF}) = 36^\circ$

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

- A) 38 B) 42 C) 63 D) 72 E) 81



$d_1 \parallel d_2$

$m(\widehat{ABC}) = m(\widehat{CBD})$

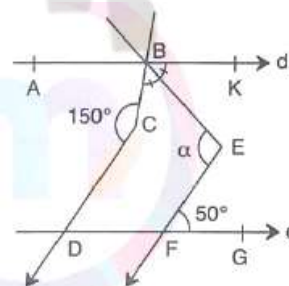
$m(\widehat{DFC}) = m(\widehat{CFG})$

$m(\widehat{BEF}) = 100^\circ$

$m(\widehat{BCF}) = 30^\circ$

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

- A) 30 B) 35 C) 40 D) 45 E) 50



$d_1 \parallel d_2$

$[CD] \parallel [EF]$

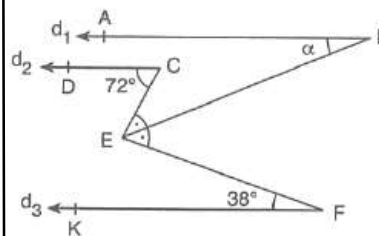
$m(\widehat{BCD}) = 150^\circ$

$m(\widehat{EFG}) = 50^\circ$

$m(\widehat{CBE}) = m(\widehat{EBK})$

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

- A) 120 B) 110 C) 100 D) 90 E) 80



$d_1 \parallel d_2 \parallel d_3$

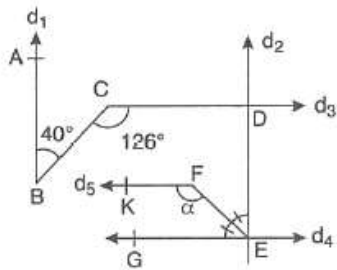
$m(\widehat{DCE}) = 72^\circ$

$m(\widehat{EFK}) = 38^\circ$

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

- A) 12 B) 15 C) 17 D) 19 E) 21

جفت خط های موازی (پیشرفته)



$$d_1 // d_2$$

$$d_3 // d_4 // d_5$$

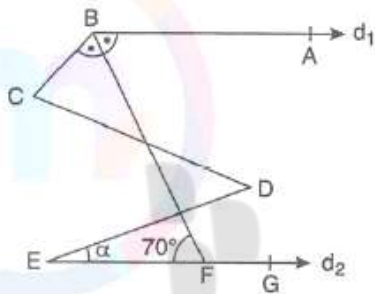
$$m(\widehat{ABC}) = 40^\circ$$

$$m(\widehat{BCD}) = 126^\circ$$

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

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

- A) 94 B) 104 C) 117 D) 127 E) 137



$$d_1 // d_2$$

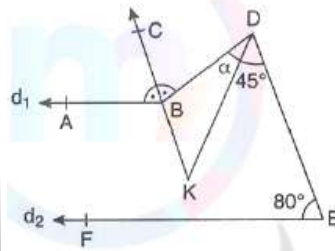
$$m(\widehat{ABF}) = m(\widehat{CBF})$$

$$m(\widehat{BCD}) = m(\widehat{CDE})$$

$$m(\widehat{BFE}) = 70^\circ$$

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

- A) 15 B) 25 C) 30 D) 35 E) 40



$$d_1 // d_2$$

$$[DE] // [KC]$$

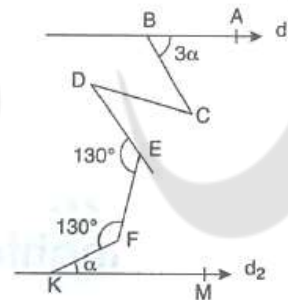
$$m(\widehat{ABC}) = m(\widehat{CBD})$$

$$m(\widehat{KDE}) = 45^\circ$$

$$m(\widehat{DEF}) = 80^\circ$$

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

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



$$d_1 // d_2$$

$$[BC] // [DE]$$

$$m(\widehat{ABC}) = 3\alpha$$

$$m(\widehat{DEF}) = 130^\circ$$

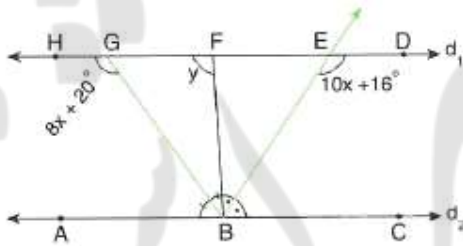
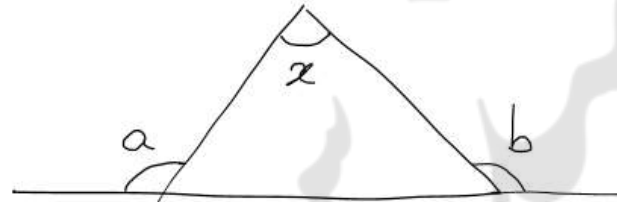
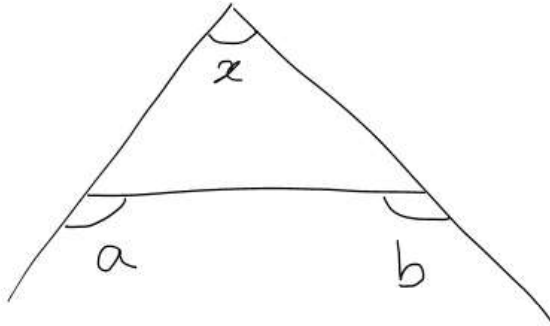
$$m(\widehat{EFK}) = 130^\circ$$

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

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

نکته خاص

$$a+b = x+180$$



$d_1 \parallel d_2$

$$m(\widehat{HGB}) = 8x + 20^\circ$$

$$m(\widehat{DEB}) = 10x + 16^\circ$$

$$m(\widehat{ABG}) = m(\widehat{GBF})$$

$$m(\widehat{FBE}) = m(\widehat{EBC}) \Rightarrow m(\widehat{GFB}) = y = ?$$

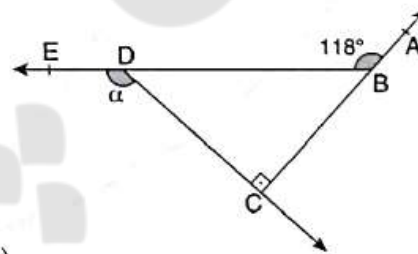
A) 68°

B) 69°

C) 70°

D) 71°

E) 72°



$$m(\widehat{ABD}) = 118^\circ$$

$$m(\widehat{BCD}) = 90^\circ$$

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

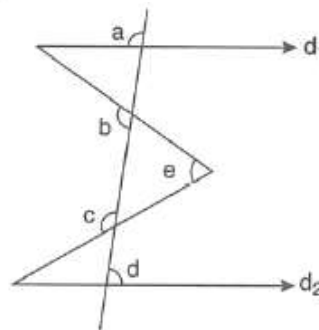
A) 152°

B) 153°

C) 154°

D) 155°

E) 156°



$d_1 \parallel d_2$

$$a + b + c + d = 460$$

$$\Rightarrow e = ?$$

A) 100

B) 90

C) 80

D) 70

E) 60