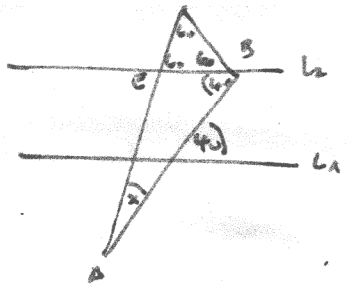
1)



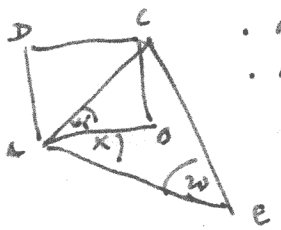
. ΔEBC equilátero
. $L_1 // L_2$

$\measuredangle CBE = 60$
$\measuredangle BCD = 60$
$B\hat{A}A = 40$ alt. internos

$\Rightarrow x + 40 + 60 + 60 = 180$
$x + 160 = 180$
$x = 20$

(D)

2)

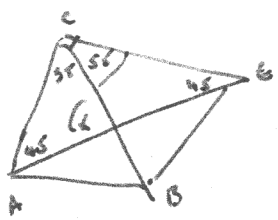


. ABCD circunferência
. ΔAEC isósceles base AC

. $\measuredangle DAB = 45$
. $\measuredangle ACE = 80$ isósceles
. $x = 80 - 65 = 35$

(C)

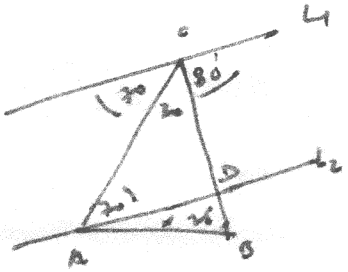
3)



. ΔACE retângulo
ΔBCE isósceles BE
. $\measuredangle CBE = 55$

. $\measuredangle ACE = 35$
. $\measuredangle EAC = 45$ isósceles
. $x + 35 + 45 = 180$
$x + 80 = 180$
$x = 100$

4)



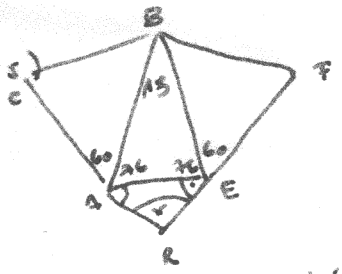
. $L_1 // L_2$
. ΔABC isósceles base AB

. $\measuredangle ACB = 30$ ângulo adjacente
. $\measuredangle CBA = 75$ isósceles
. $\measuredangle DAC = 30$ alt. internos

$x = 75 - 30 = 5$

(A)

5)



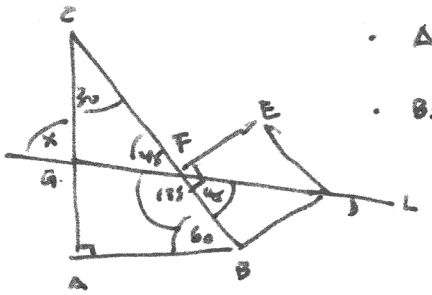
. ΔAFB isósceles base AE
. ΔEFB e ΔABC equiláteros

. $\Delta FEB = 60$ equilátero
. $\measuredangle BEA = x$ isósceles
. $\measuredangle E = 44$ ângulo adjacente.
. $\measuredangle BAC = 60$ equilátero
. $\measuredangle A = 44$ ângulo ext.

$x = 180 - 44 - 44$
$x = 92$

(C)

6)

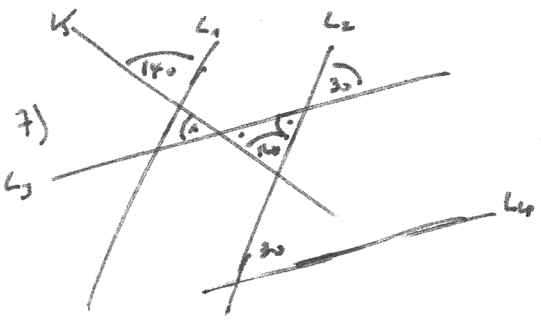


- ΔABC rect. em A
- BDFE quad.

- $\Delta GCF = 45$ op. à vértice
- $\measuredangle GFB = 135$ ângulos suplementares
- $\measuredangle ACB = 30$ soma 180

$x = 45 + 30 = 75$ (A)

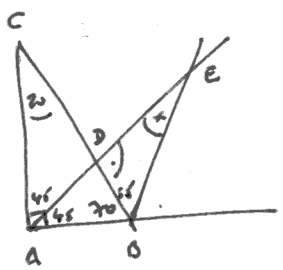
7)



$\measuredangle l_2 l_3 = 30$ correspondentes ✓
$\measuredangle l_4 l_5 = 140$
$\measuredangle l_3 l_4 = 30$ op. à vértice

$x = 10$ (A)

8)



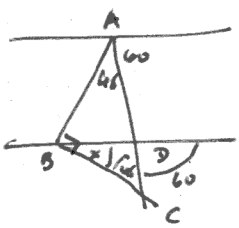
ΔABC rect em A
AE bissetriz ext. de BC

$\measuredangle CBA = 70$
$\measuredangle BAE = 45$ } bissetriz
$\measuredangle EAC = 45$

$\measuredangle BDE = 115$ ang. ext.
$\measuredangle EDB = 55$ bissetriz

$x + 55 + 115 = 180$
$x + 170 = 180$
$x = 10$ (B)

9)



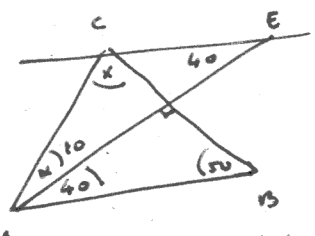
$L_1 \parallel L_2$
ΔABC retângulo isósceles

$\measuredangle ACB = 45$ } isósceles
$\measuredangle BAC = 45$ }

$x + 45 = 60$

$x = 15$ (C)

10)



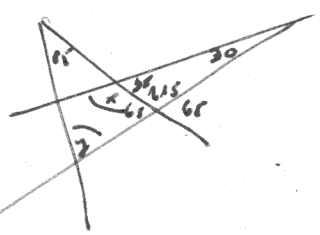
- ΔABC isósceles base AB
- $CE \parallel AB$
- $AE \perp BC$

$\measuredangle BAE = 40$ alt int
$\measuredangle CBA = 50$ soma 180

$x + 40 = 50$ isósceles
$x = 10$ isósceles

$x = 80$ (D)

11)



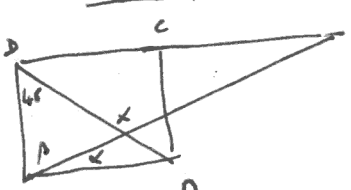
$x + y = ?$

$x = 145$.

$y + 55 + 65 = 180$
$y + 120 = 180$
$y = 60$

$x + y = 145 + 60 = 205$ (D)

12)



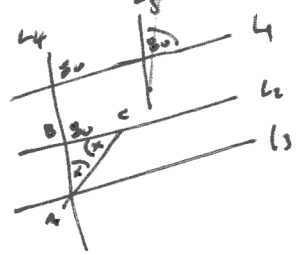
ABCD quadrado
$DC \parallel AB$

$\beta = 2\alpha$ $\alpha + \beta = 90$

$\beta = 60$
$\alpha = 30$

$x = 45 + \beta$
$x = 105$ (E)

13)



$L_4 \parallel L_2 \parallel L_3$; $L_4 \parallel L_5$

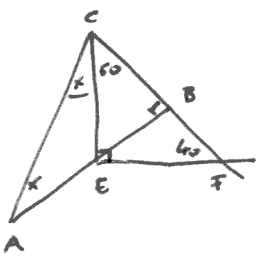
$\triangle ABC$ isósceles base AC

$2x = 80$

$x = 40$

(B)

14)

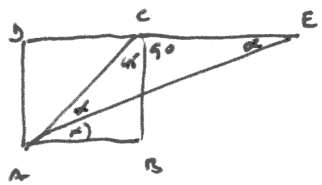


- $\triangle ABC$, $\triangle CEF$ retângulos
- $\measuredangle EFC = 40$
- $EC = EA$

$x = 40$ soma 180 ($\triangle AEC$)

(D)

15)



- $ABCD$ quadr.
- $\triangle ACE$ isósc. base AE

$135 + 2\alpha = 180$

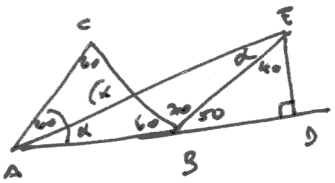
$\alpha = 22.5$

$x = 45 - \alpha = 45 - 22.5$

$x = 22.5$

(C)

16)



- $\triangle ABC$ equil.
- $\triangle ABE$ isósceles base AE
- $ED \perp DB$

$2\alpha + 60 + 70 = 180$

$2\alpha + 130 = 180$

$2\alpha = 50$

$\alpha = 22.5$

$x + (60 - 22.5) + 60 = 180$

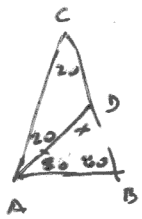
$x + 37.5 + 60 = 180$

$x + 97.5 = 180$

$x = 82.5$

(E)

17)



- $\triangle ADC$ isósceles base AC
- $\triangle ABC$ " " AB

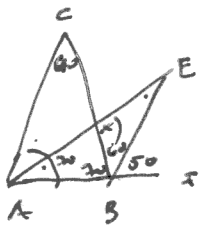
$x = 20 + 120$

$x = 140$

ângulo ext.

(E)

18)



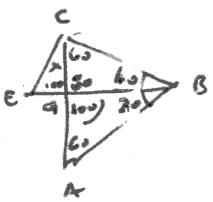
- $\triangle ABC$, $\triangle ABE$ isósceles base AB , AE
- $\measuredangle ACB = 40$
- $\measuredangle EBF = 50$

$x = 22.5$

$x = 22.5 + 50 = 72.5$

(C) !

19)



- $\triangle ABC$ equilátero
- $\triangle EBC$ isósceles. base $\equiv C$
- $\measuredangle AGB = 100$

$60 + x = \alpha$

$80 = x + \alpha$

$80 = x + 60 + x$

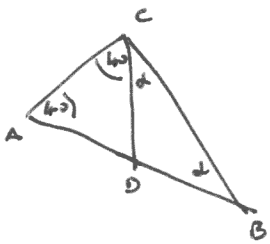
$80 = 2x + 60$

$2x = 20$

$x = 10$

(B)

20)



- CD é mediana.

$\alpha + \alpha + 40 + 40 = 180$

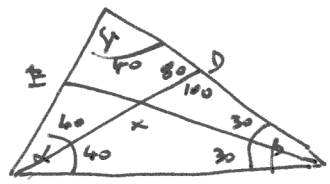
$2\alpha + 80 = 180$

$2\alpha = 100$

$\alpha = 50$

(C)

21)



- $\alpha : \beta : \varphi = 4:3:2$
- AD, BE bissetrizes

$4a + 3a + 2a = 180$

$9a = 180$

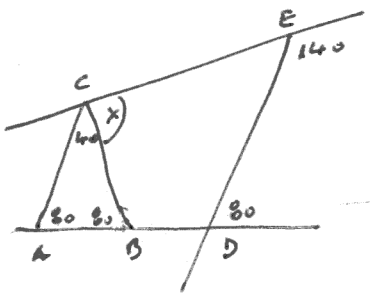
$a = 20.$

$\Rightarrow \begin{cases} \alpha = 80 \\ \beta = 60 \\ \varphi = 40. \end{cases}$

$x + 40 + 30 = 180$

$x = 110$ (D)

22)

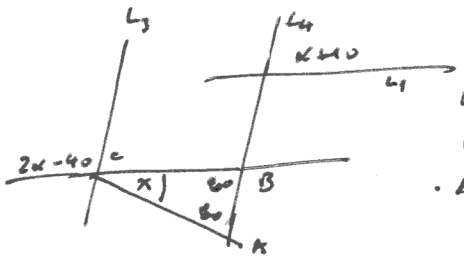


- AC // DE

$x + 40 = 140$ ang. conesp.

$x = 100$ (B)

23)



$L_1 // L_2$

$L_3 // L_4$

- $\triangle ABC$ isósceles base AB

$x + 10 + 2x - 40 = 180$

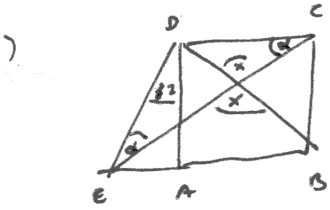
$3x - 30 = 180$

$3x = 210$

$x = 70$

$x = 40$ (D)

24)



- $\triangle BCD$ escaleno
- $\triangle DCE$ isósceles base EC

$3x + 90 + 2\alpha = 180$

$2\alpha = 58$

$\alpha = 29$

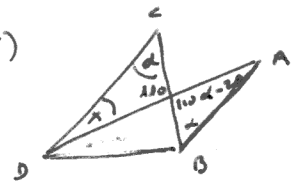
$\alpha + 45 + x = 180$

$29 + 45 + x = 180$

$74 + x = 180$

$x = 106$ (D)

25)



- AB // CD
- $\measuredangle DAB$ mede 20° menos que el $\measuredangle DCB$
- $\measuredangle CDA = x$.

$\alpha + \alpha - 20 + 110 = 180$

$2\alpha + 90 = 180$

$2\alpha = 90$

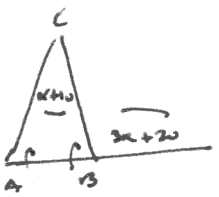
$\alpha = 45$

$x + 45 + 110 = 180$

$x + 155 = 180$

$x = 25$ (B)

26)



- $\triangle ABC$ isósceles base AB

$3\alpha + 20 + \beta = 180$ (1)

$3\alpha + 20 = \alpha + 10 + \beta$

$\alpha + 10 + \beta = 3\alpha + 20$ (2)

(1) − (2) =

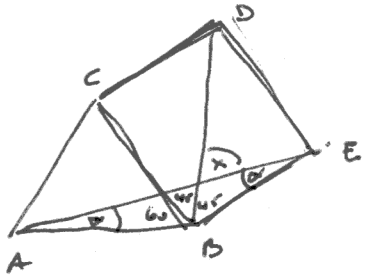
$3\alpha + 20 + \beta - \alpha - 10 - \beta = 180 - 3\alpha - 20$

$2\alpha + 10 = 160 - 3\alpha$

$5\alpha = 150$

$\alpha = 30$ (B)

27)



- $\triangle ABC$ equilátero
- $BECD$ cuadrado

$x = 45 + \alpha$

$2\alpha + 60 + 45 + 45 = 180$

$2\alpha + 150 = 180$

$2\alpha = 30$

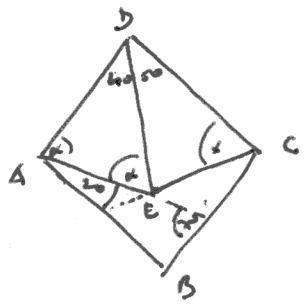
$\alpha = 15$

$x = 45 + 15$

$x = 60$

(D)

28)

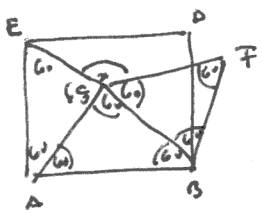


- $ABCD$ cuadrado
- $\triangle AED$ isósceles base AE

$\alpha + 2\omega = 90$

$\alpha = 70$

30)



$ABCD$ cuad.
- $\triangle BFC$
- $\triangle AEC$

} equi

$x = 180$

(C)