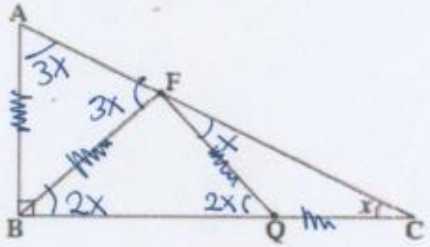
1

En el gráfico, AB = BF = FQ = QC. Calcule x.

A) 10°
B) 15°
C) 30°
D) 22,5°
E) 45°



$\triangle ABC \sim 3x + x = 90$

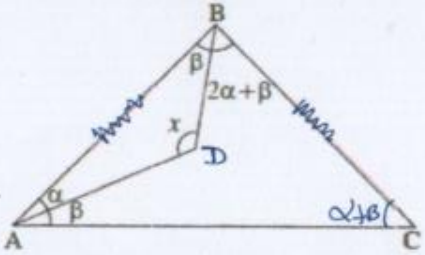
$4x = 90$

$x = 22,5°$

2

En el gráfico, AB = BC. Calcule x.

A) 90°
B) 100°
C) 120°
D) 135°
E) 150°



$\triangle ABC \sim \alpha + \beta + 2\beta + 2\alpha + \alpha + \beta = 180°$

$4\alpha + 4\beta = 180$

$4(\alpha + \beta) = 180$

$(\alpha + \beta) = 45°$

$\triangle ABD \sim \alpha + \beta + x = 180°$

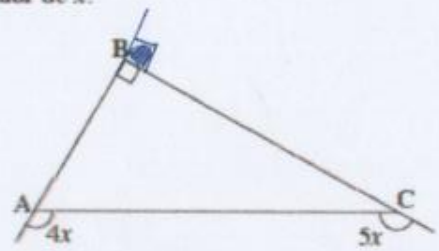
$45 + x = 180$

$x = 135$

3

Halle el valor de x.

A) 30°
B) 35°
C) 45°
D) 60°
E) 75°



$4X + 5X + 90 = 360$

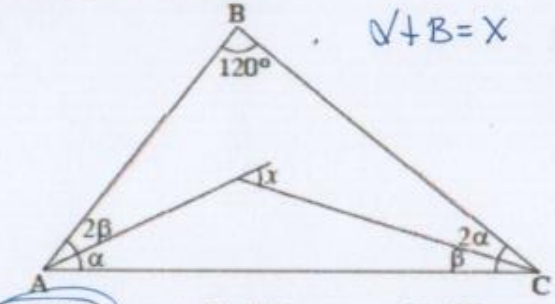
$9x = 270$

$x = 30°$

4

En el gráfico, calcule x.

$\alpha + \beta = x$



A) 20°
B) 30°
C) 40°
D) 45°
E) 60°

$\triangle ABC \sim 2\beta + \alpha + \beta + 2\alpha + 120 = 180$

$3\beta + 3\alpha = 60$

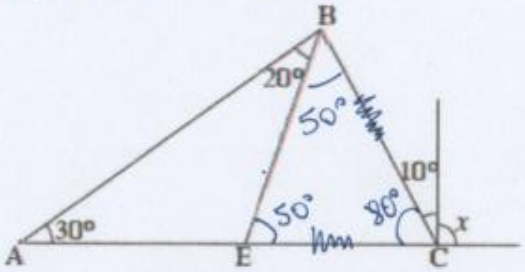
$3(\beta + \alpha) = 60$

$\beta + \alpha = 20$

$\Rightarrow x = \alpha + \beta = 20$

5

En el gráfico, BC = EC. Calcule x.



A) 70°
B) 75°
C) 80°
D) 85°
E) 90°

$80 + 10 + x = 180$

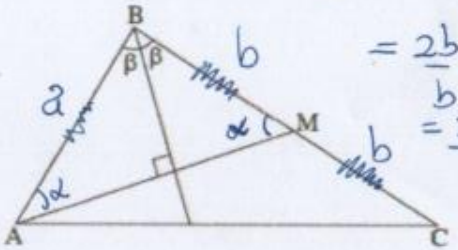
$x = 90°$

6

En el gráfico, $\overline{AM}$ es mediana relativa a $\overline{BC}$. Calcule

$$\frac{AB+MC}{BM} = \frac{a+b}{b} = \frac{b+b}{b}$$

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



$= \frac{2b}{b}$

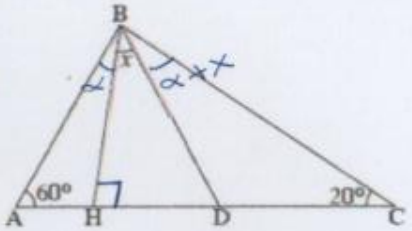
$= 2$

$a = b$

7

En el gráfico, $\overline{BH}$ y $\overline{BD}$ son altura y bisectriz interior, respectivamente, del triángulo ABC relativos a $\overline{AC}$. Calcule x.

A) 10°
B) 20°
C) 30°
D) 40°
E) 50°



$\triangle ABH \sim \alpha + 60 = 90 \rightarrow \alpha = 30°$

$\triangle ABC \sim 60 + 2\alpha + 2x + 20 = 180$

$2(30) + 2x = 100$

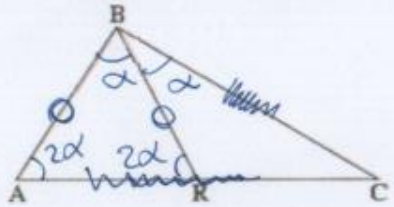
$2x = 40$

$x = 20$

8

En el gráfico, $\overline{BR}$ es una bisectriz relativa a $\overline{AC}$. Si $AB = BR$ y $BC = AC$. Calcule la $m\sphericalangle ABR$.

A) 36°
B) 50°
C) 53°
D) 37°
E) 55°

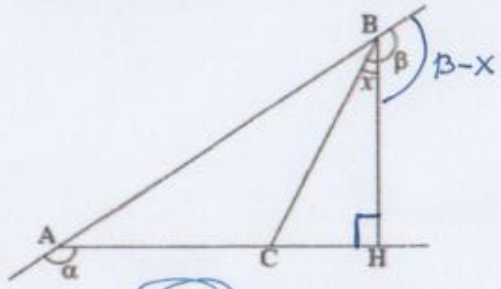


$\triangle ABR \sim 5\alpha = 180$

$\alpha = 36°$

9

En el gráfico, $\overline{BH}$ es altura relativa a $\overline{AC}$. Si $\alpha + \beta = 320°$, calcule x.



A) 40°
B) 50°
C) 60°
D) 70°
E) 80°

$\alpha + B - x + 90 = 360°$

$320 - x = 270$

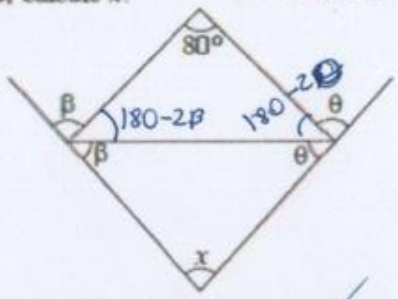
$50 = x$

10

En el gráfico, calcule x.

$B + \theta + x = 180°$

A) 20°
B) 30°
C) 35°
D) 40°
E) 50°



$180 - 2B + 180 - 2\theta + 80 = 360$

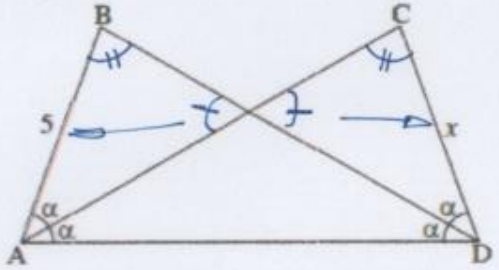
$260 = 2(B + \theta)$

$130 = B + \theta$

$\Rightarrow 130 + x = 180 \rightarrow x = 50°$

11

En la figura, calcule x.

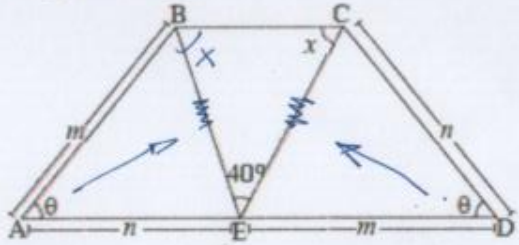


A) 2
B) 3
C) 4
D) 5
E) 7

$x = 5$

12

En el gráfico, calcule x.



A) 50°
B) 60°
C) 70°
D) 80°
E) 90°

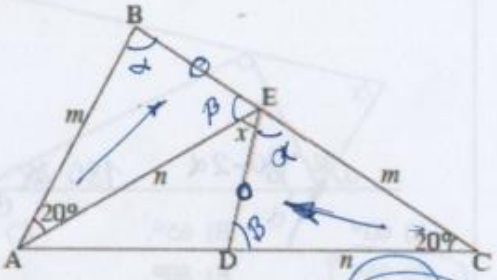
$2x + 40 = 180$

$2x = 140$

$x = 70$

13

Calcule x.



A) 15° B) 10° C) 20°

D) 25° E) 35°

$B+\alpha+20=180$

$B+\alpha=160°$

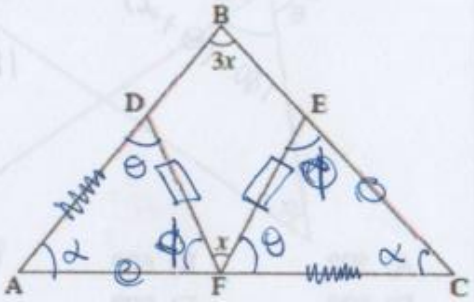
$\rightarrow \alpha+B+x=180°$

$160+x=180$

$x=20°$

14

Si AD = FC, AF = EC y DF = EF, calcule x.



A) 20° B) 25° C) 30°

D) 36° E) 45°

$\Delta FEC \sim \theta+\phi+\alpha=180°$

$\theta+\phi=3x+x$

$180=4x$

$45=x$

15

En el gráfico, calcule x.

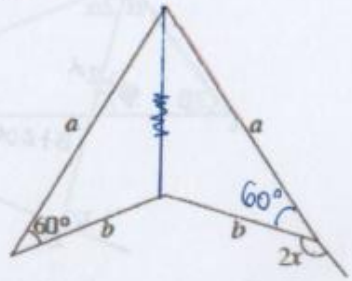
A) 40°

B) 50°

C) 70°

D) 80°

E) 60°



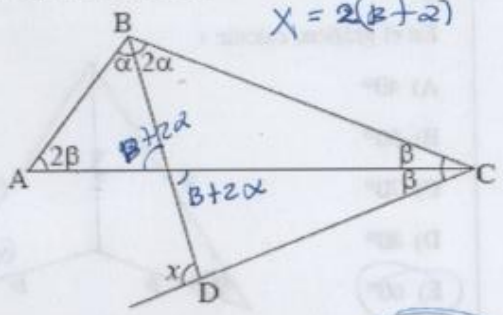
$60+2x=180$

$2x=120$

$x=60°$

16

En la figura, calcule x.



$X = 2(\beta+\alpha)$

A) 60° B) 90° C) 120°

D) 100° E) 150°

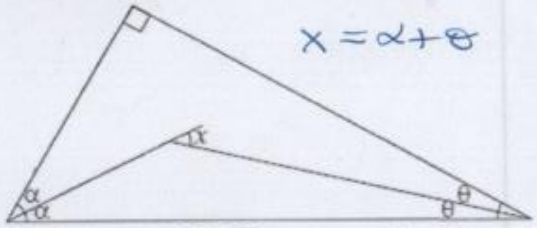
$2\beta + \alpha + \beta + 2\alpha = 180$

$\alpha + \beta = 60$

$\Rightarrow X = 2(60) = 120°$

17

En la figura, calcule x.



$X = \alpha + \theta$

A) 20° B) 30° C) 40°

D) 45° E) 60°

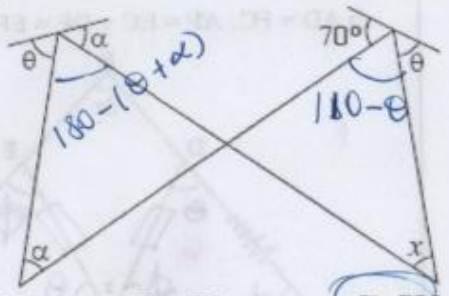
$2\alpha + 2\theta = 90$

$\alpha + \theta = 45$

$\Rightarrow X = 45°$

18

En la figura, calcule x.



A) 50° B) 60° C) 70°

D) 80° E) 90°

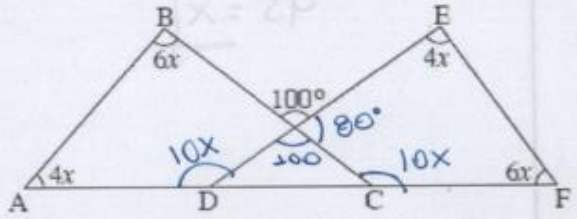
$\alpha + 180 - (\theta + \alpha) = 110 - \theta + x$

$180 - \theta = 110 - \theta = x$

$70 = x$

19

En la figura, calcule x.



A) 10° B) 12° C) 14°

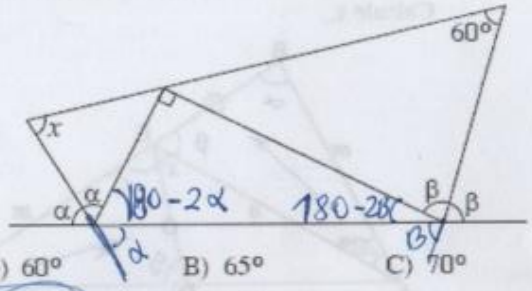
D) 15° E) 16°

$80 + 10X + 10x = 360$

$X = 14$

20

En la figura, calcule x.



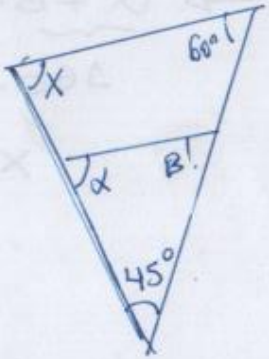
A) 60° B) 65° C) 70°

D) 75° E) 80°

$180 - 2\alpha + 180 - 2\beta = 90$

$270 = 2(\alpha+\beta)$

$135 = \alpha + \beta$



$X + 60 + 45 = 180$

$X = 75°$