

TRIGONOMETRY

VOLUME IV

2nd
SECONDARY

FEEDBACK



1

Si $\alpha + \beta = 90^\circ$, además $\tan\alpha = \frac{3}{4}$; efectúe

$$A = 4\cot\beta + 7$$

Recordar:

Si $x + y = 90^\circ$



$$\tan x = \cot y$$

Resolución:

Como $\alpha + \beta = 90^\circ \rightarrow \tan\alpha = \cot\beta$

Pero $\tan\alpha = \frac{3}{4} \rightarrow \cot\beta = \frac{3}{4}$

Calculamos $A = 4\cot\beta + 7$

$$A = 4\left(\frac{3}{4}\right) - 1$$

$$\therefore A = 2$$

2

Calcule el valor de $\tan 5x$, si

$$\operatorname{sen}(5x + 32^\circ) = \cos(x + 4^\circ)$$

Recordar:

$$\text{Si } \theta + \beta = 90^\circ$$

$$\operatorname{sen} \theta = \cos \beta$$

Resolución:

Por propiedad:

$$5x + 32^\circ + x + 4^\circ = 90^\circ$$

$$7x + 36^\circ = 90^\circ$$

$$7x = 54^\circ$$

$$x = 9^\circ$$

$$\begin{aligned} \text{Calculamos } \tan 5x &= \tan 5(9^\circ) = \tan 45^\circ \\ &= \mathbf{1} \end{aligned}$$

3

Reduzca

$$P = \frac{7 \sec 27^\circ + 3 \csc 63^\circ}{3 \csc 63^\circ - \sec 27^\circ}$$

Recordar:

$$\text{Si } \theta + \beta = 90^\circ$$



$$\sec \theta = \csc \beta$$

Resolución:Como $27^\circ + 63^\circ = 90^\circ$

$$\rightarrow \sec 27^\circ = \csc 63^\circ$$

Reemplazamos en P:

$$P = \frac{7 \csc 63^\circ + 3 \csc 63^\circ}{3 \csc 63^\circ - \csc 63^\circ}$$

$$P = \frac{10 \cancel{\csc 63^\circ}}{2 \cancel{\csc 63^\circ}}$$

$$\therefore P = 5$$

4

Reduzca

$$M = (\operatorname{sen} 74^\circ + \operatorname{cos} 16^\circ) \operatorname{csc} 74^\circ$$

Recordar:

- RT de \angle complementarios

$$\text{Si } \alpha + \beta = 90^\circ$$

$$\operatorname{sen} \alpha = \operatorname{cos} \beta$$



- RT recíprocas

$$\operatorname{sen} \theta \cdot \operatorname{csc} \theta = 1$$

Resolución:

Como $16^\circ + 74^\circ = 90^\circ$

$$\rightarrow \operatorname{cos} 16^\circ = \operatorname{sen} 74^\circ$$

Reemplazamos en M:

$$M = (\operatorname{sen} 74^\circ + \operatorname{sen} 74^\circ) \operatorname{csc} 74^\circ$$

$$M = 2 \operatorname{sen} 74^\circ \cdot \operatorname{csc} 74^\circ$$

1

$$\therefore M = 2$$

5

Calcule el valor de β si

$$\tan(7\beta - 58^\circ) = \frac{1}{\cot(\beta + 8^\circ)}$$

Recordar:

$$\tan\alpha \cdot \cot\alpha = 1$$

Resolución:

De la igualdad:

$$\tan(7\beta - 58^\circ) = \frac{1}{\cot(\beta + 8^\circ)}$$

A pink curved arrow with an 'x' marks the cross-multiplication step between the two sides of the equation.

$$\tan(7\beta - 58^\circ) \cdot \cot(\beta + 8^\circ) = 1$$

$$\rightarrow 7\beta - 58^\circ = \beta + 8^\circ$$

$$6\beta = 66^\circ$$

$$\therefore \beta = 11^\circ$$

6

Calcule el valor de θ si

$$1 = \frac{\csc(\theta - 12^\circ)}{\sec(7\theta - 58^\circ)}$$

Recordar:

Si $x + y = 90^\circ$



$$\sec x = \csc y$$

Resolución:

De la igualdad:

$$1 = \frac{\csc(\theta - 12^\circ)}{\sec(7\theta - 58^\circ)}$$

Diagram showing a pink arrow from the denominator $\sec(7\theta - 58^\circ)$ to the numerator $\csc(\theta - 12^\circ)$ with a pink 'x' indicating the reciprocal operation.

$$\sec(7\theta - 58^\circ) = \csc(\theta - 12^\circ)$$

$$\rightarrow 7\theta - 58^\circ + \theta - 12^\circ = 90^\circ$$

$$8\theta - 70^\circ = 90^\circ$$

$$8\theta = 160^\circ$$

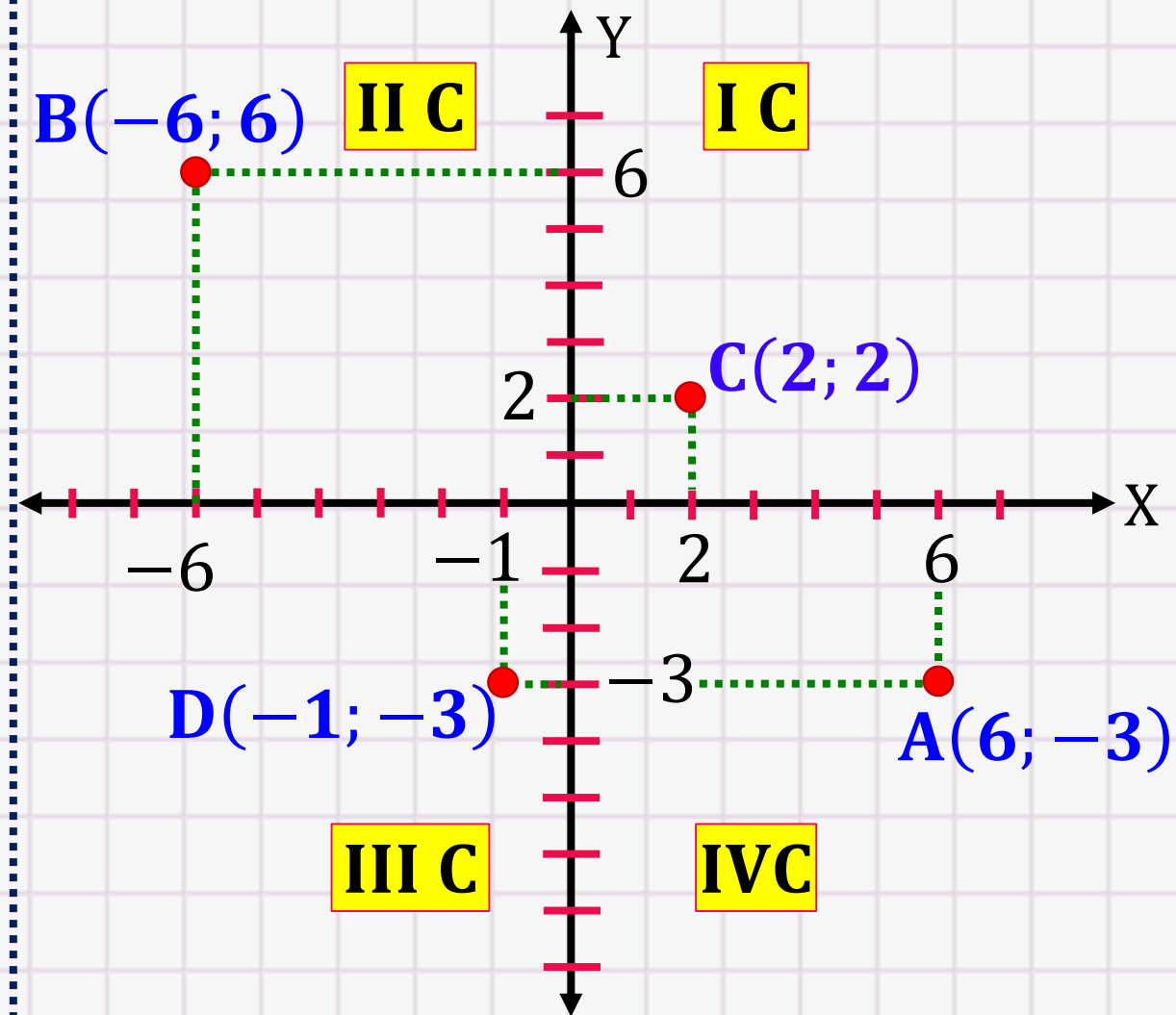
$$\therefore \theta = 20^\circ$$

7

Escriba verdadero (V) o falso (F) según corresponda.

- El punto $A(6; -3) \in \text{IIC}$ (F)
- El punto $B(-6; 6) \in \text{IC}$ (F)
- El punto $C(2; 2) \in \text{IVC}$ (F)
- El punto $D(-1; -3) \in \text{IIIC}$ (V)

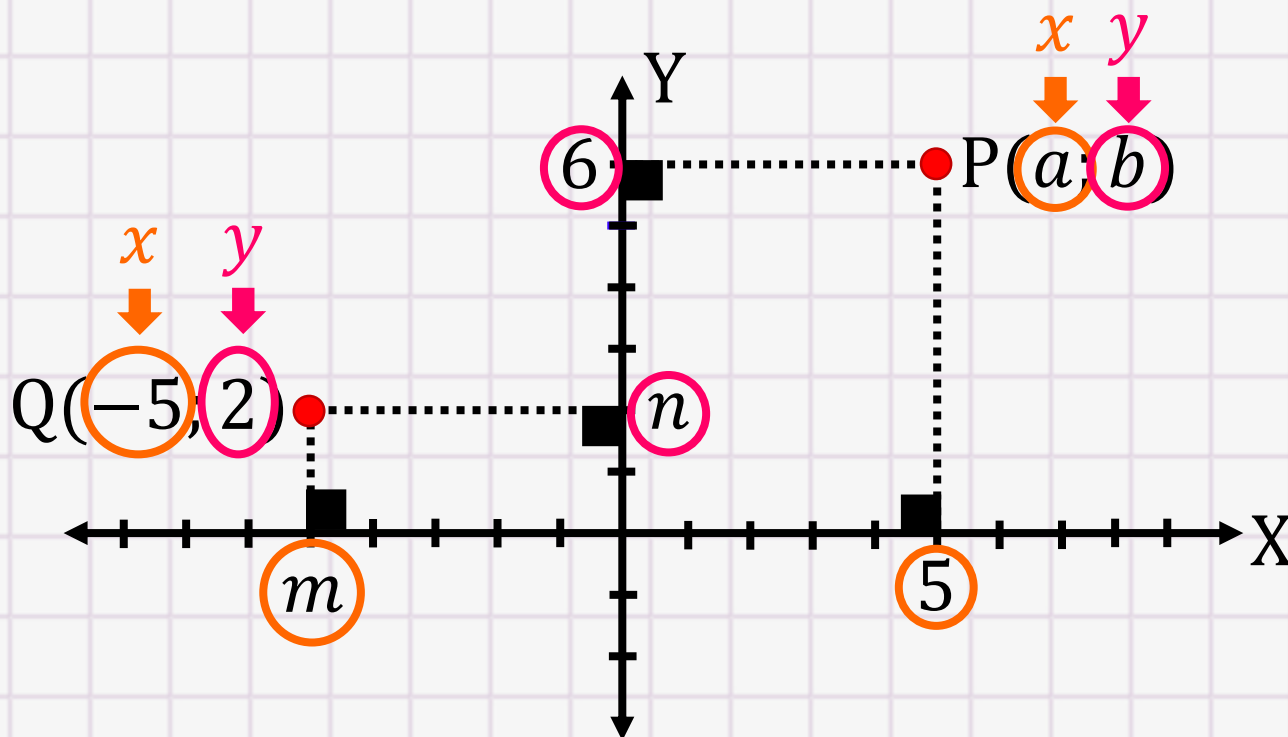
Resolución:



8

Del gráfico, efectúe

$$P = \frac{a + b + m}{n}$$

Resolución:

Del gráfico:

Punto P:

$$a = 5$$

$$b = 6$$

Punto Q:

$$m = -5$$

$$n = 2$$

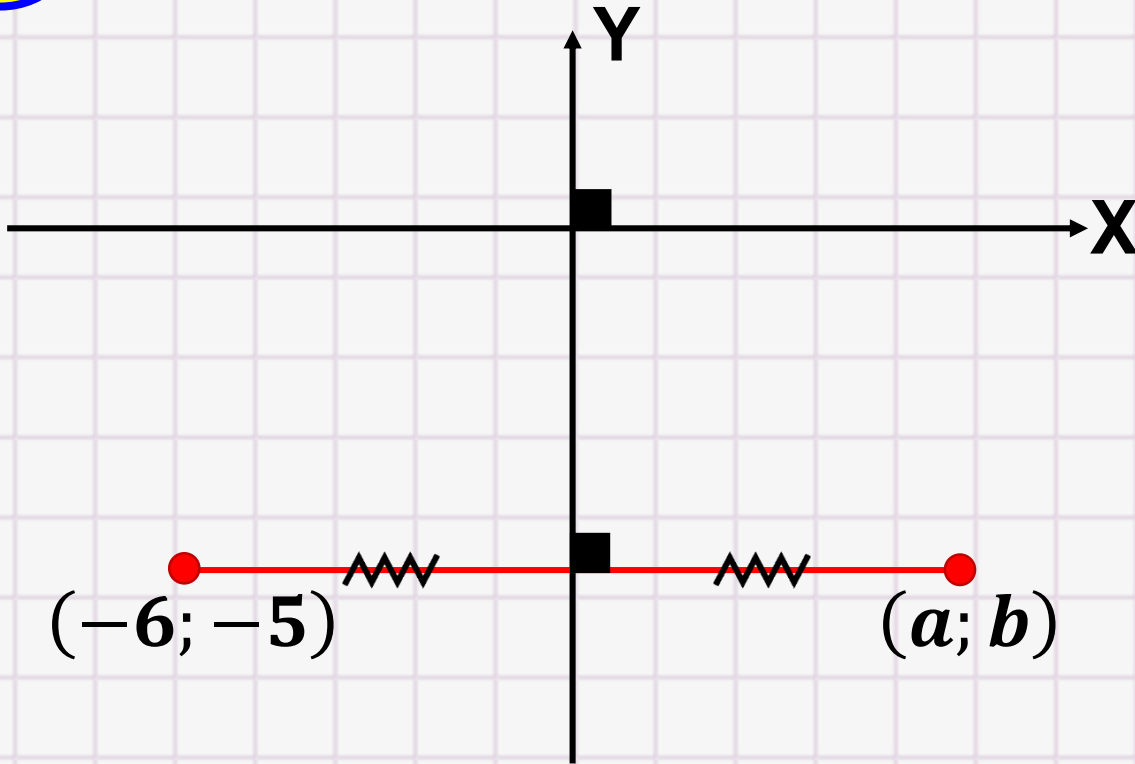
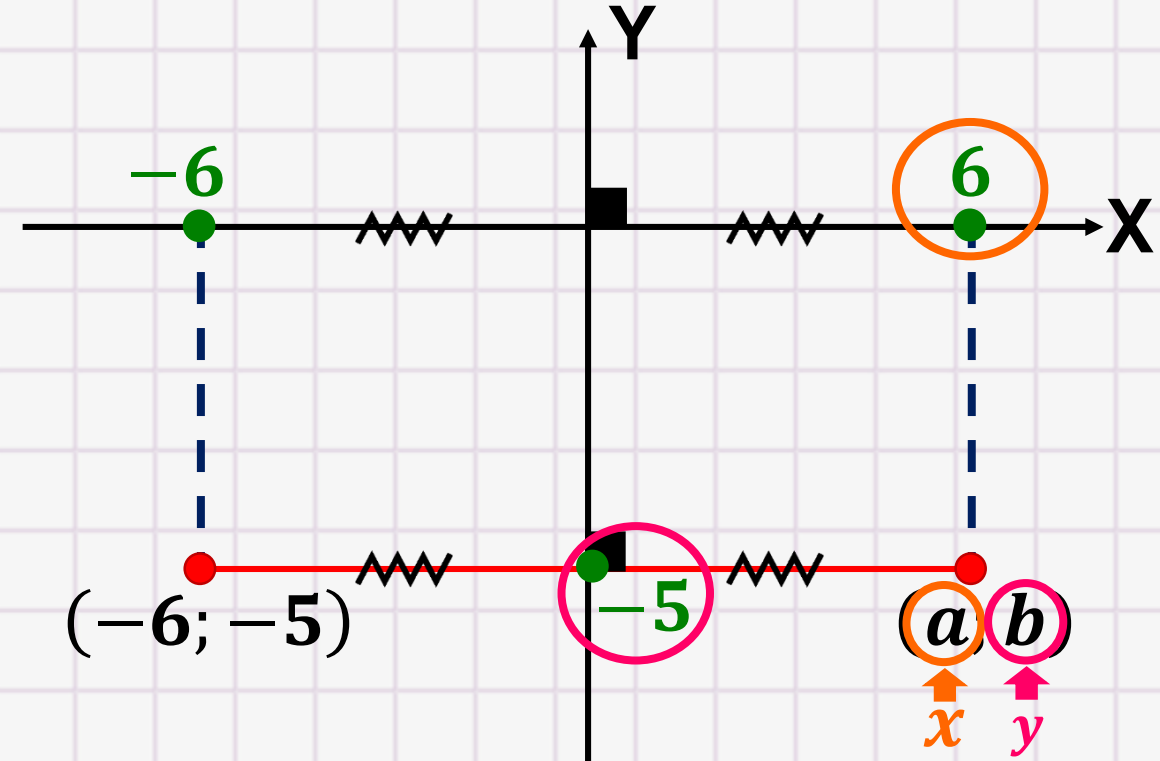
Calculamos:

$$P = \frac{5 + 6 + (-5)}{2}$$

$$P = \frac{6}{2}$$

$$\therefore P = 3$$

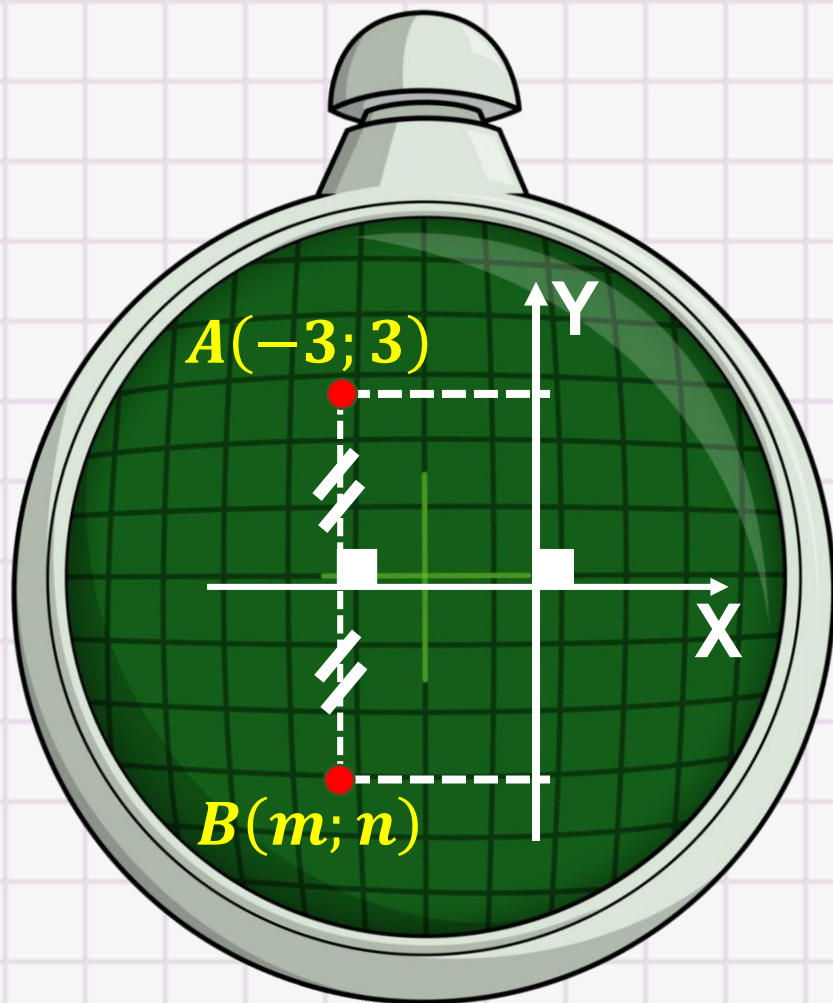
9

Del gráfico, calcule $a + b$.Resolución:Del gráfico: $a = 6$ $b = -5$

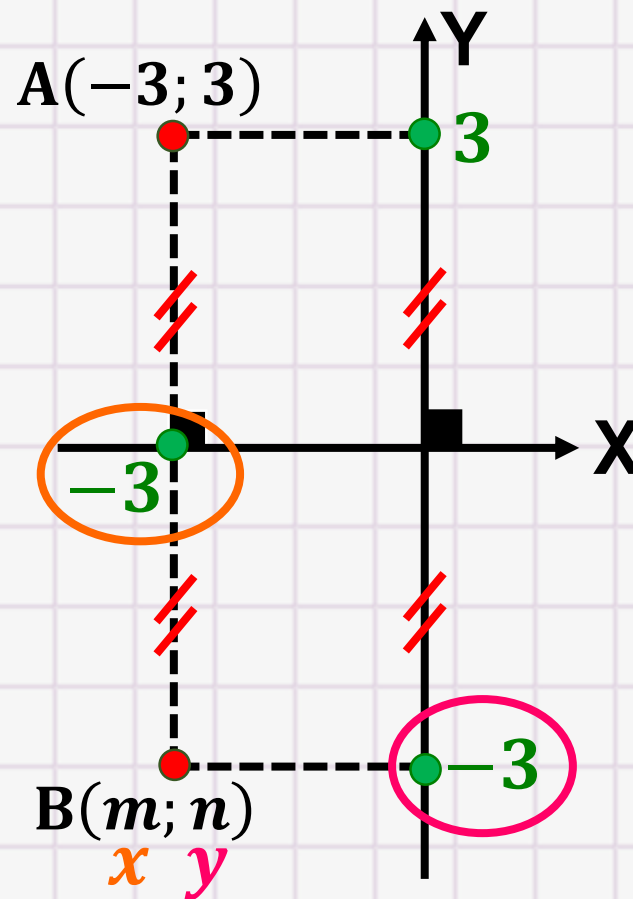
$$\therefore a + b = 1$$

10

Un radar presenta fallas y solo muestra las coordenadas de los puntos A y B como se muestra en la figura. Calcule $m \cdot n$.



Resolución:



Del gráfico:

$$m = -3$$

$$n = -3$$

Calculamos:

$$m \cdot n = (-3)(-3)$$

$$\therefore m \cdot n = 9$$



SACO
OLIVEROS