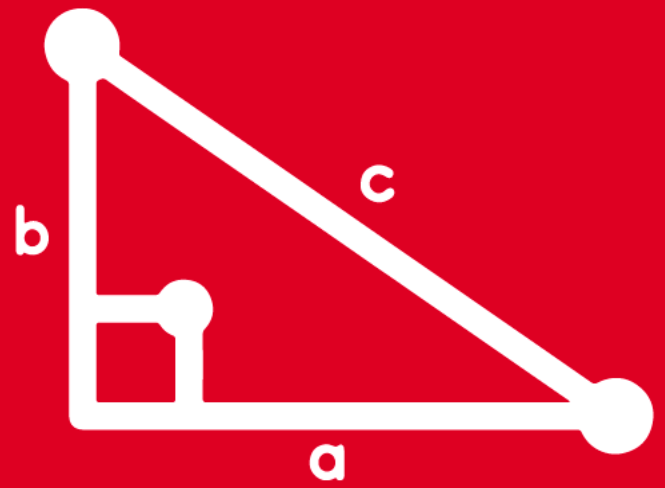
TRIGONOMETRY

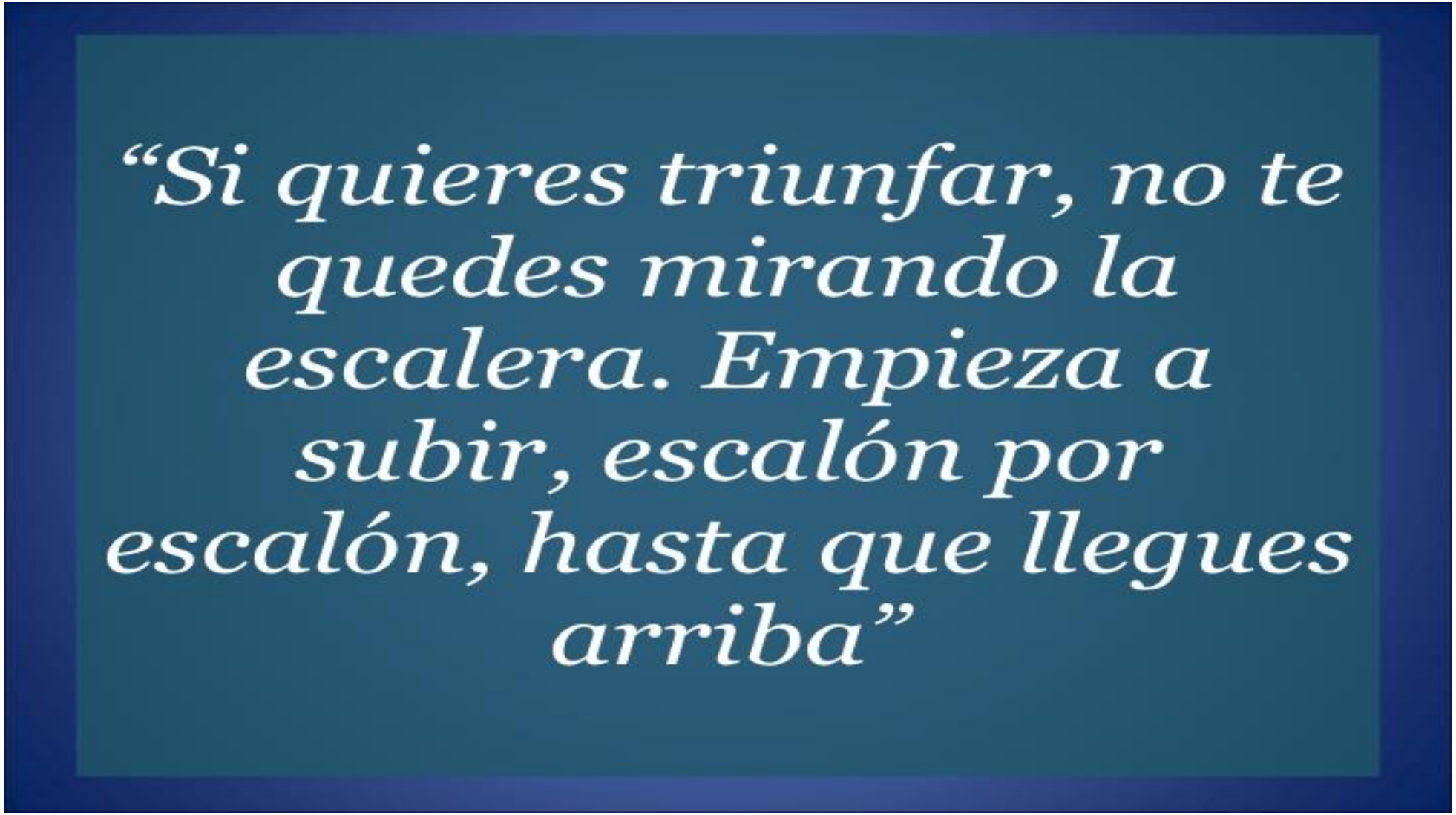
Chapter 12



3rd
SECONDARY

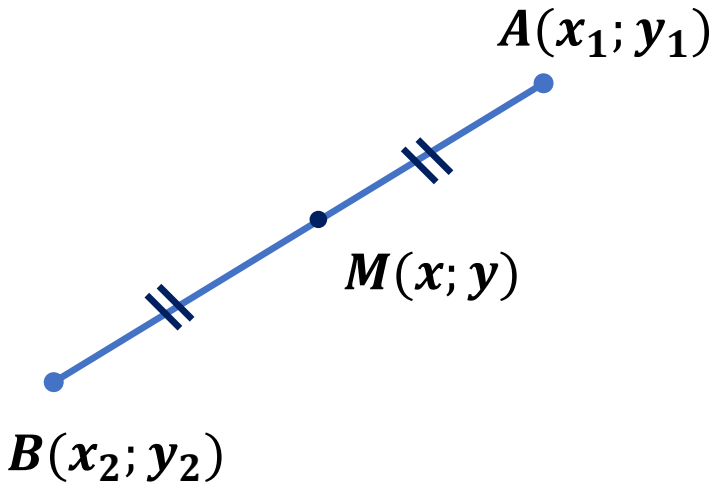
GEOMETRÍA ANALÍTICA II

SACO OLIVEROS


“Si quieres triunfar, no te quedes mirando la escalera. Empieza a subir, escalón por escalón, hasta que llegues arriba”

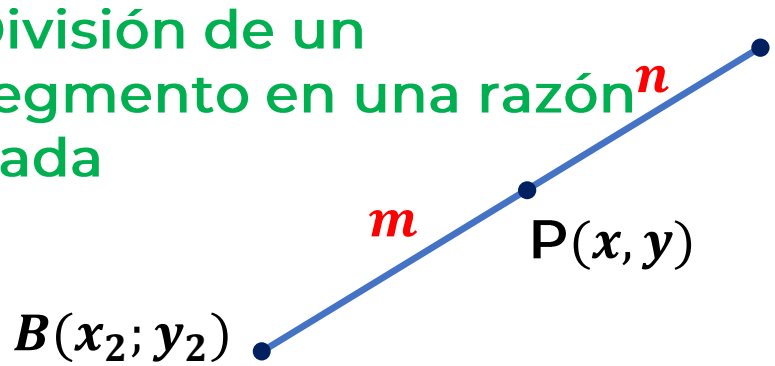
GEOMETRÍA ANALÍTICA

Coordenadas de puntos medios de un segmento



$$x = \frac{x_1 + x_2}{2} \qquad y = \frac{y_1 + y_2}{2}$$

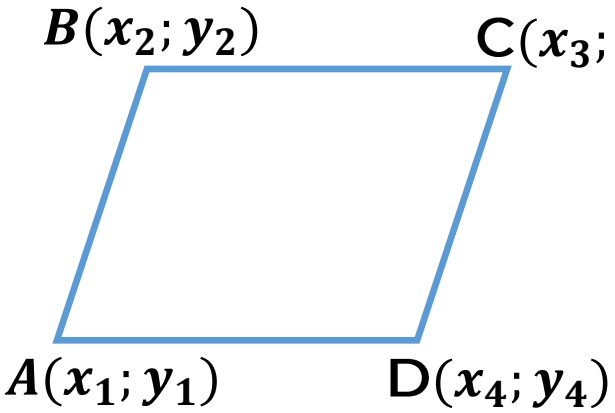
División de un segmento en una razón dada



$$x = \frac{mx_1 + nx_2}{m + n}$$

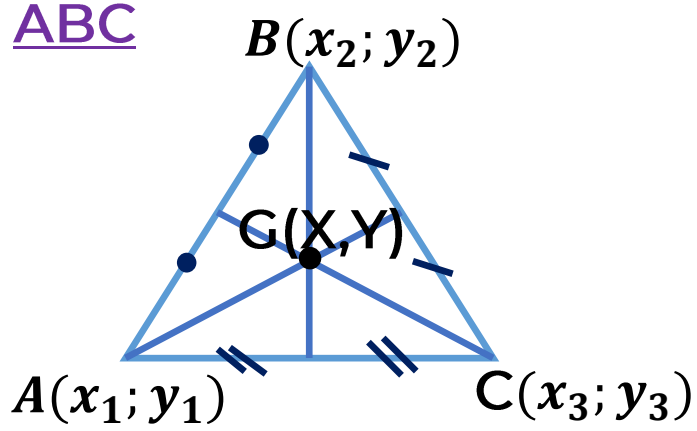
$$y = \frac{my_1 + ny_2}{m + n}$$

ABCD es un paralelogramo



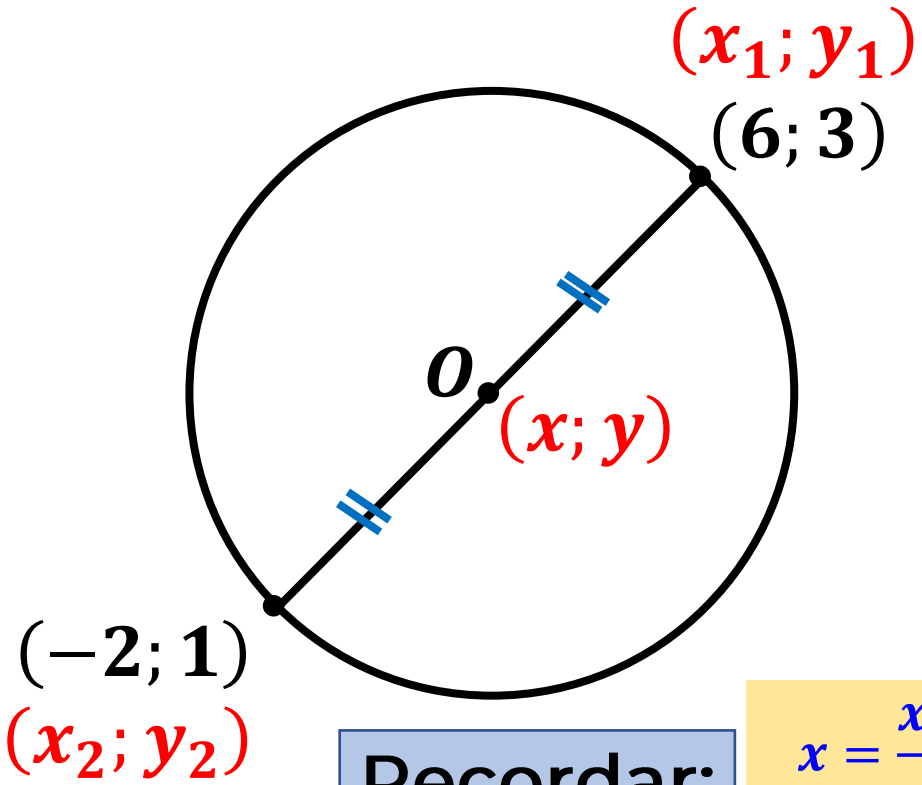
$$x_1 + x_3 = x_2 + x_4$$
$$y_1 + y_3 = y_2 + y_4$$

Baricentro del triangulo ABC



$$x = \frac{x_1 + x_2 + x_3}{3} \qquad y = \frac{y_1 + y_2 + y_3}{3}$$

1 Del gráfico, determine las coordenadas de O.



Recordar:

$$x = \frac{x_1 + x_2}{2}$$

$$y = \frac{y_1 + y_2}{2}$$

RESOLUCIÓN:

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

$$x = \frac{4}{2}$$

$$x = 2$$

$$y = \frac{3 + 1}{2}$$

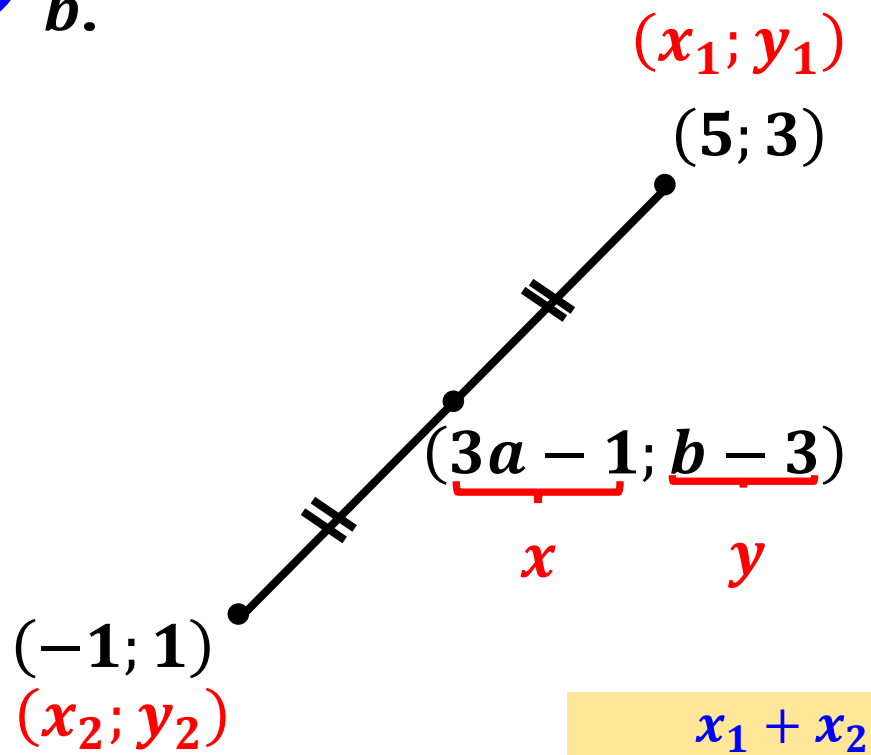
$$y = \frac{4}{2}$$

$$y = 2$$

Por tanto las coordenadas del centro son:

$$\therefore O(2; 2)$$

2 Del gráfico, calcule $a + b$.



Recordar:

$$x = \frac{x_1 + x_2}{2}$$

$$y = \frac{y_1 + y_2}{2}$$

RESOLUCIÓN:

$$3a - 1 = \frac{5 + (-1)}{2}$$

$$3a - 1 = \frac{4}{2}$$

$$3a - 1 = 2$$

$$3a = 3$$

$$a = 1$$

$$b - 3 = \frac{3 + 1}{2}$$

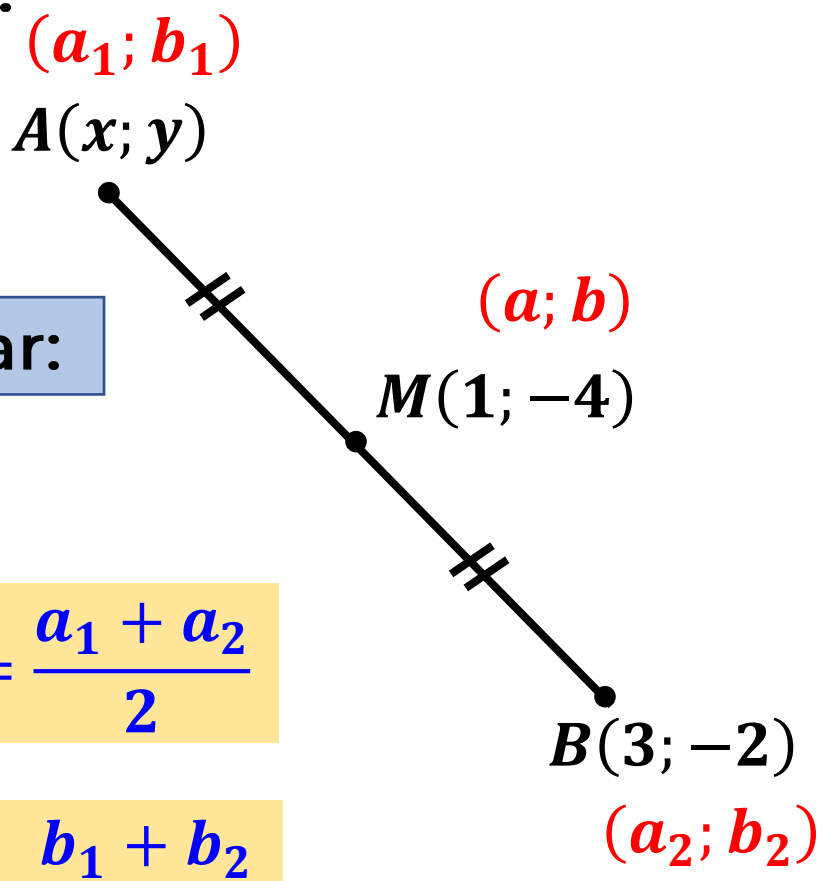
$$b - 3 = \frac{4}{2}$$

$$b - 3 = 2$$

$$b = 5$$

$$\therefore a + b = 6$$

3 Del gráfico, calcule $x - y$.



Recordar:

$$a = \frac{a_1 + a_2}{2}$$

$$b = \frac{b_1 + b_2}{2}$$

RESOLUCIÓN:

$$1 = \frac{x + 3}{2}$$

$$2 = x + 3$$

$$2 - 3 = x$$

$$\boxed{-1 = x}$$

$$-4 = \frac{y + (-2)}{2}$$

$$-8 = y - 2$$

$$-8 + 2 = y$$

$$\boxed{-6 = y}$$

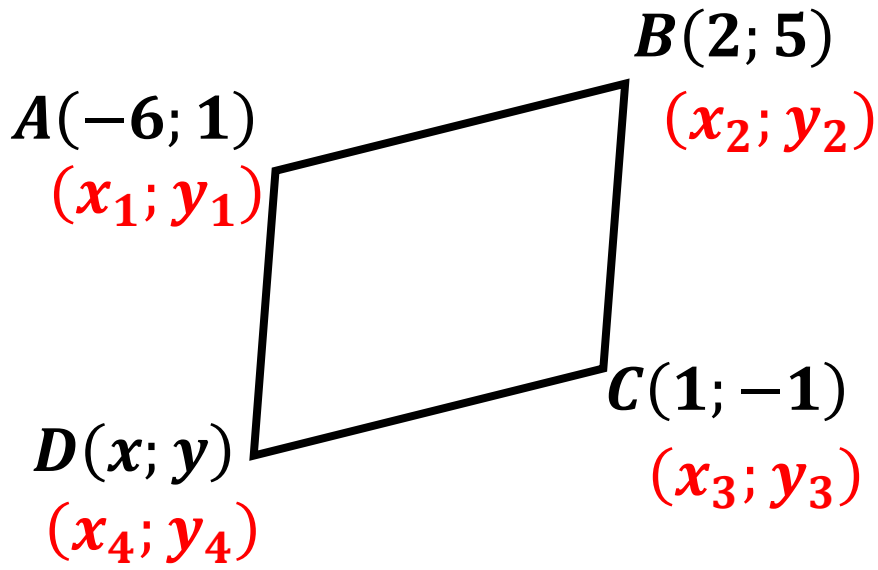
Por tanto: $x - y = -1 - (-6)$

$$x - y = -1 + 6$$

$$\therefore x - y = 5$$

4

Del gráfico, determine las coordenadas del punto D, si $ABCD$ es un paralelogramo.



Recordar:

$$x_1 + x_3 = x_2 + x_4$$

$$y_1 + y_3 = y_2 + y_4$$

RESOLUCIÓN:

$$-6 + 1 = 2 + x$$

$$-5 = 2 + x$$

$$-5 - 2 = x$$

$$\boxed{-7 = x}$$

$$1 + (-1) = 5 + y$$

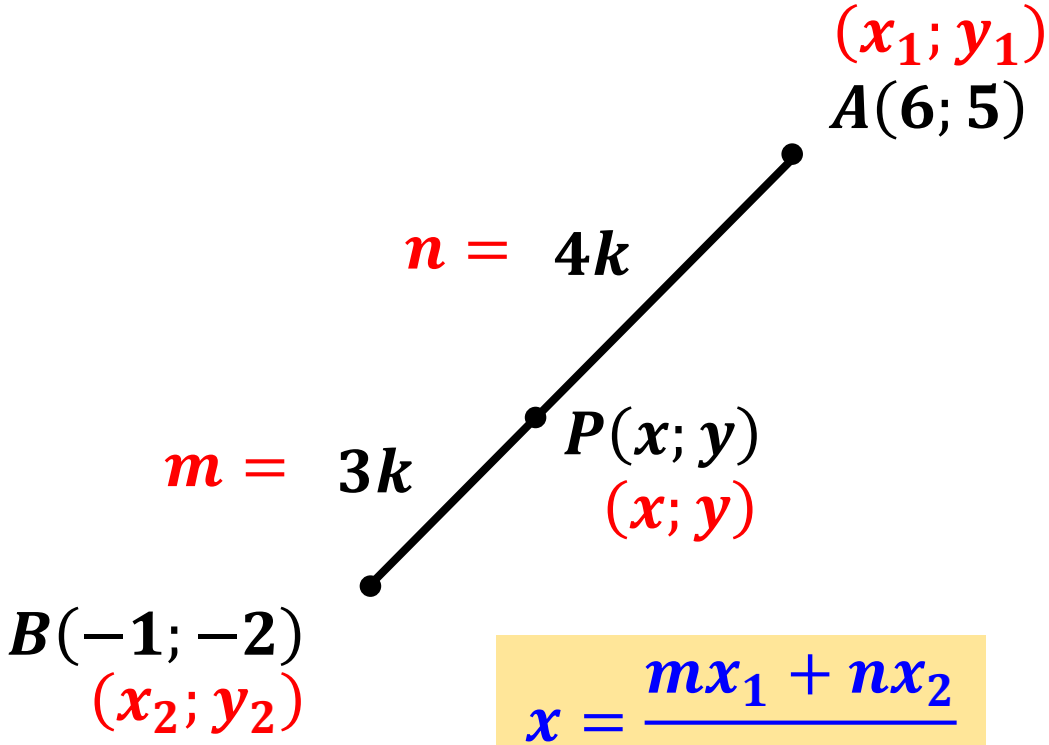
$$0 = 5 + y$$

$$0 - 5 = y$$

$$\boxed{-5 = y}$$

$$\therefore D(-7;-5)$$

5 Del gráfico, calcule $x + y$.



Recordar:

$$x = \frac{mx_1 + nx_2}{m + n}$$

$$y = \frac{my_1 + ny_2}{m + n}$$

RESOLUCIÓN:

$$x = \frac{3k(6) + 4k(-1)}{3k + 4k} = \frac{18 - 4}{7}$$

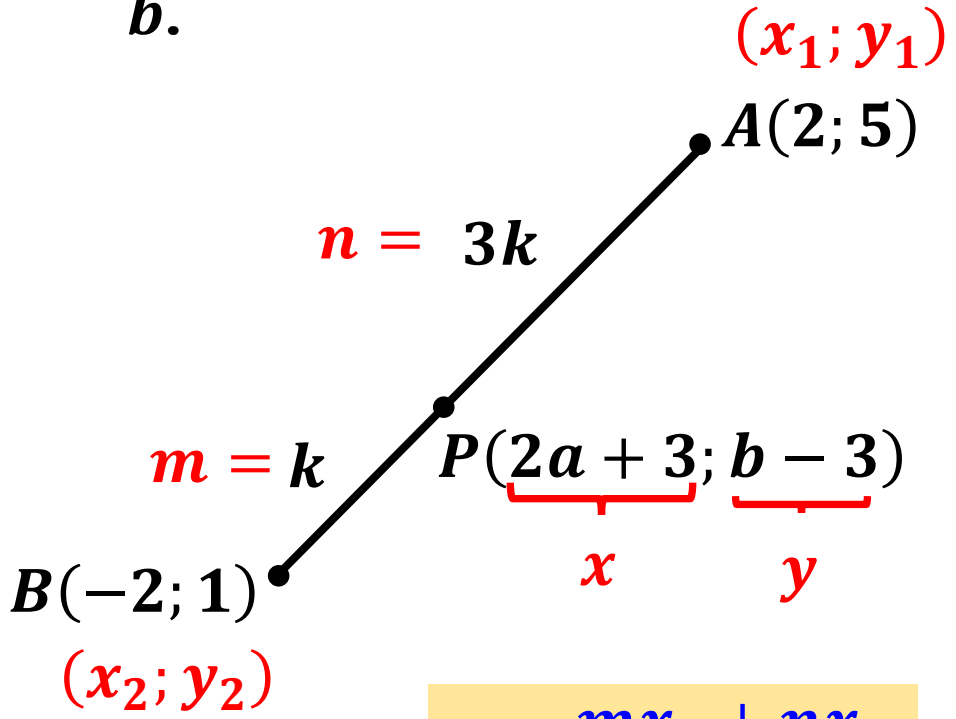
$$\boxed{x = 2}$$

$$y = \frac{3k(5) + 4k(-2)}{3k + 4k} = \frac{15 - 8}{7}$$

$$\boxed{y = 1}$$

$$\therefore x + y = 3$$

6 Del gráfico, calcule $a + b$.



Recordar:

$$x = \frac{mx_1 + nx_2}{m + n}$$

$$y = \frac{my_1 + ny_2}{m + n}$$

RESOLUCIÓN:

$$2a + 3 = \frac{k(2) + 3k(-2)}{k + 3k} = \frac{2 - 6}{4}$$

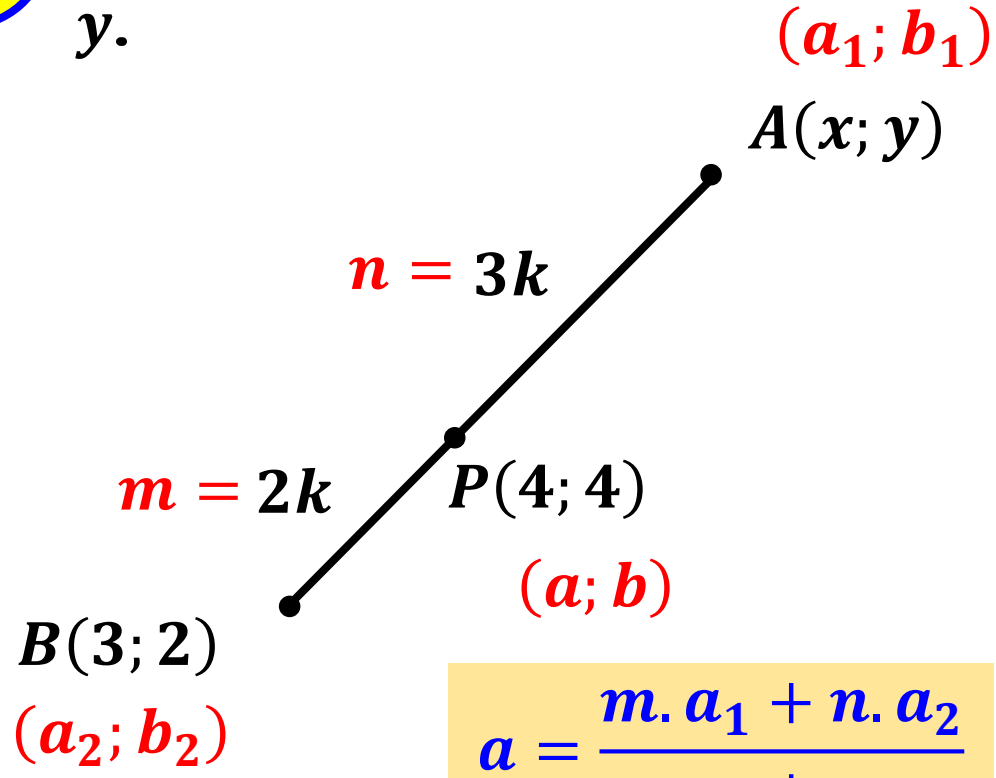
$$2a + 3 = -1 \Rightarrow \boxed{a = -2}$$

$$b - 3 = \frac{k(5) + 3k(1)}{k + 3k} = \frac{5 + 3}{4}$$

$$b - 3 = 2 \Rightarrow \boxed{b = 5}$$

$$\therefore a + b = 3$$

7 Del gráfico, calcule $2x + y$.



Recordar:

$$a = \frac{m.a_1 + n.a_2}{m+n}$$

$$b = \frac{m.b_1 + n.b_2}{m+n}$$

RESOLUCIÓN:

$$4 = \frac{2k(x) + 3k(3)}{2k + 3k} \Rightarrow 4 = \frac{2x+9}{5}$$

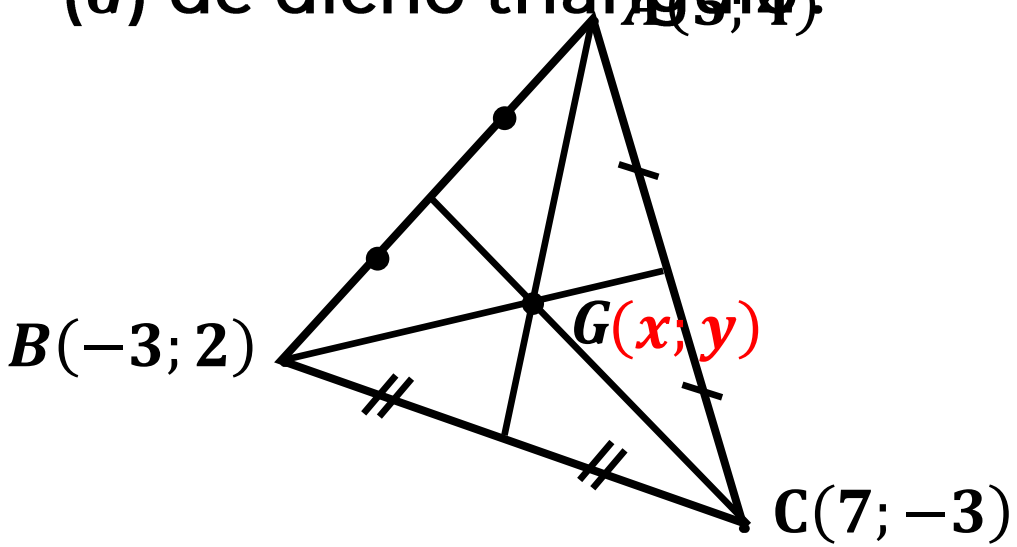
$$20 = 2x + 9 \Rightarrow \boxed{x = \frac{11}{2}}$$

$$4 = \frac{2k(y) + 3k(2)}{2k + 3k} \Rightarrow 4 = \frac{2y+6}{5}$$

$$20 = 2y + 6 \Rightarrow \boxed{y = 7}$$

$$\therefore 2x + y = 18$$

8 Tres autos salen de un estacionamiento y se ubican, tal como se muestra en la figura. Si al unir las tres ubicaciones se forma un triángulo, ¿cuáles son las coordenadas del baricentro (G) de dicho triángulo?



RESOLUCIÓN:

Como G es baricentro

$$x = \frac{(5)+(-3)+(7)}{3} = \frac{9}{3}$$

$$x = 3$$

$$y = \frac{(4)+(2)+(-3)}{3} = \frac{3}{3}$$

$$y = 1$$

$$\therefore G(3; 1)$$


NO TE CANSES,
SIGUE ADELANTE
PORQUE LA VICTORIA
QUE TE ESPERA
ES GRANDE