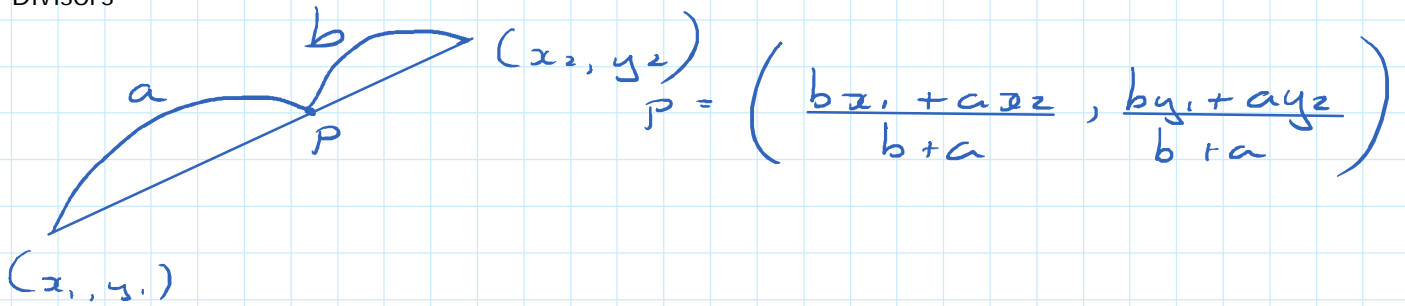
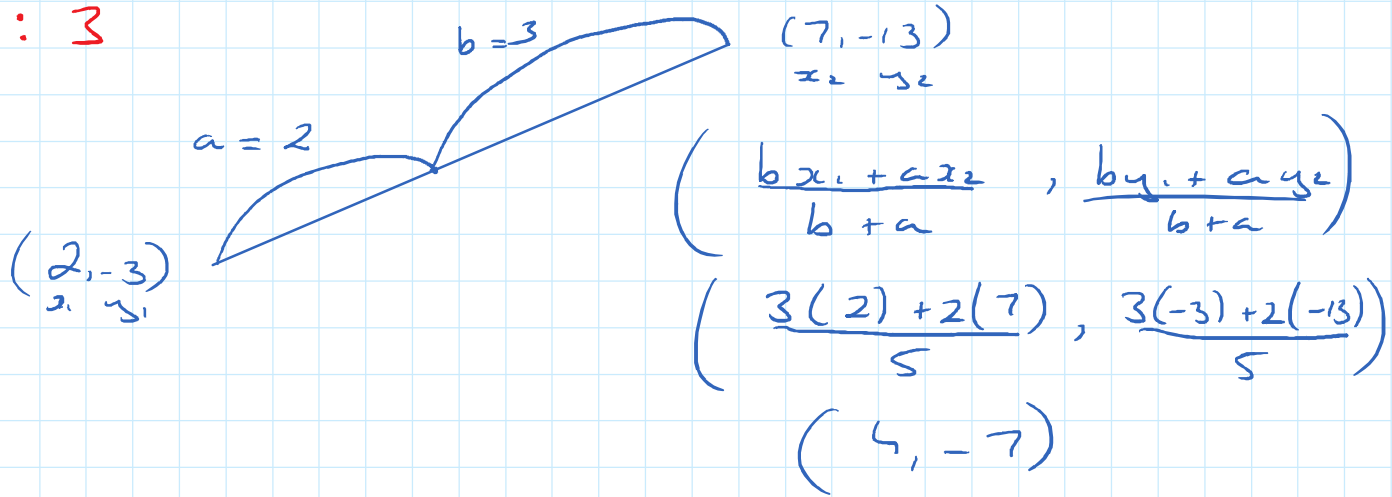


Divisors



Divide $(2, -3)$ and $(7, -13)$ in ratio $2:3$



$(2, -3)$ $(7, -13)$ $\frac{2}{5}$ of whole.

x gap = 5 $\Rightarrow 2:3 = \frac{2}{5}$ of gap

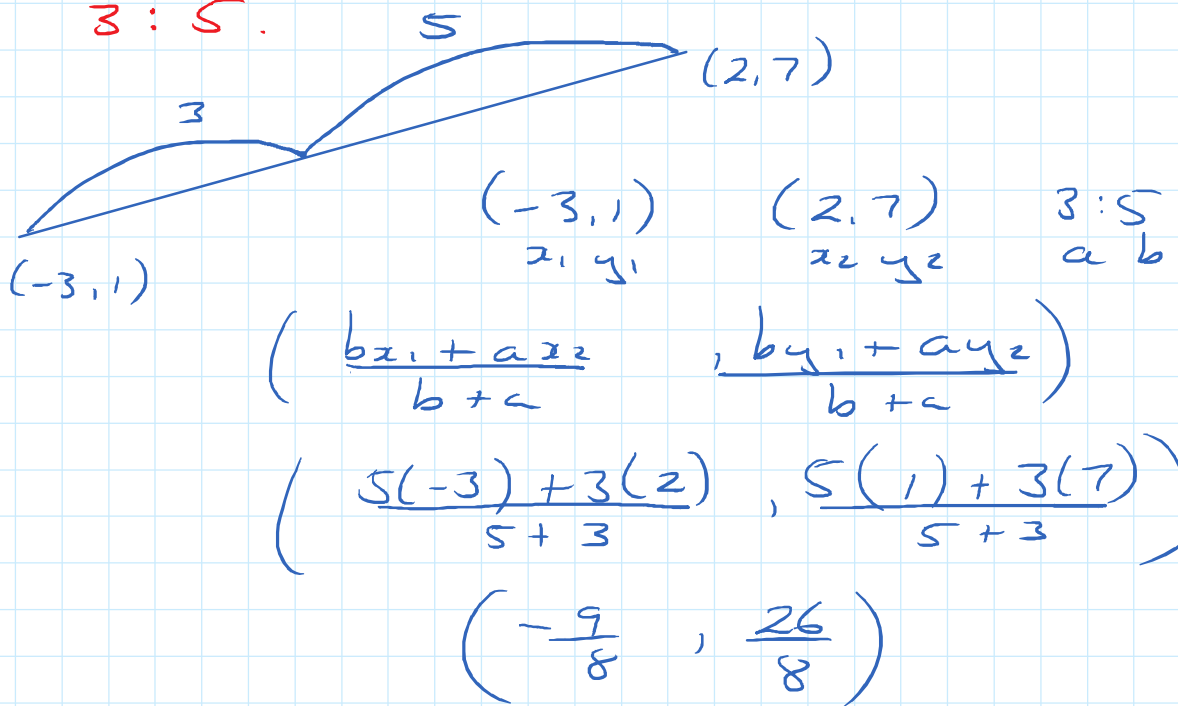
$$\frac{2}{5}(5) = 2$$

y gap = -10 $\Rightarrow 2:3 = \frac{2}{5}$ of gap

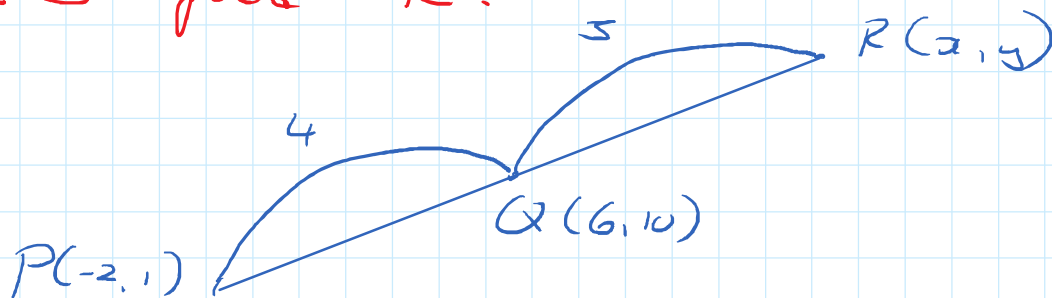
$$\frac{2}{5}(-10) = -4$$

$$\begin{array}{r} (-2, -3) \\ +2, -4 \\ \hline (4, -7) \end{array}$$

Divide $(-3, 1)$ and $(2, 7)$ in ratio $3:5$.



$P(-2, 1)$ and $Q(6, 10)$ are extended to R through Q in ratio $4:3$ find R .



Method 1:

$$\left(\frac{bx_1 + ay_2}{b + a}, \frac{by_1 + ay_2}{b + a} \right) = (6, 10)$$

Method 2: Gap from $(-2, 1)$ to $(6, 10)$ represents ratio of 4
 x -co-ordinates

$$4 \text{ parts} = 8$$

$$1 \text{ part} = 2$$

$$3 \text{ parts} = 6$$

$$\begin{array}{c} -2 \xrightarrow{+8} 6 \xrightarrow{+6} 12 \\ \underbrace{\hspace{1.5cm}}_4 \quad \underbrace{\hspace{1.5cm}}_3 \end{array}$$

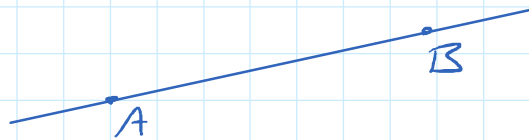
y values

$$\begin{array}{c} 1 \xrightarrow{+9} 10 \xrightarrow{+6\frac{3}{4}} 16\frac{3}{4} \\ \underbrace{\hspace{1.5cm}}_4 \quad \underbrace{\hspace{1.5cm}}_3 \end{array}$$

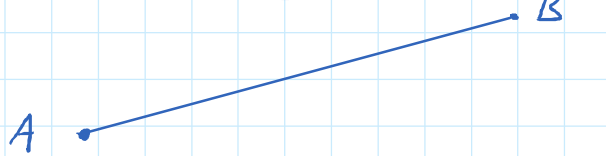
$(12, 16\frac{3}{4})$

$[AB]$ is extended to C in ratio $2:3$. A is $(5, -2)$ and B is $(7, -8)$ find C ?

Note. $AB = \text{Line } AB$

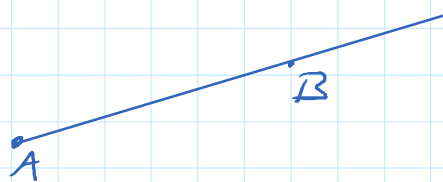


$[AB]$ = Line segment AB



Starts at A ends at B .

$[AB]$ = half line = ray



Starts at end and goes through B

$$(5, -2) \rightarrow (7, -8) \quad 2:3$$

$$5 \xrightarrow{+2} 7 \xrightarrow{+3} 10$$

$\underbrace{\hspace{100px}}_2$
 $\underbrace{\hspace{100px}}_3$

$$-2 \xrightarrow{-6} -8 \xrightarrow{-9} -17$$

$\underbrace{\hspace{100px}}_2$
 $\underbrace{\hspace{100px}}_3$

Answer (10, -17)

$A(2, -1)$ divides $P(-1, 2)$ and $Q(3, -2)$ in what ratio.

