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In the diagram above a line is drawn through the line AB extending in the ratio 3:1 apart

A (5, 3) B (15, -4) C (8, 3)

Then from the diagram

$$AC:CB = 3:1$$

$$\frac{AC}{CB} = \frac{3}{1} \quad (5, 3) \quad (15, -4) \quad (x, y)$$

$$AC = 3(CB)$$

But $AC = 2y(CB)$

$$AC = 2y(CB) \quad 2y = 2x$$

$$CB = 2x - 2y$$

$$1(2x - 2y) - 3(2x - 2y) = 0$$

$$1(2x - 5) - 3(15 - 2x) = 0$$

$$2x - 5 = 45 + 5x - 15 = 0$$

$$2x - 5 = 45 + 5x - 15 = 0$$

$$4x = 50$$

$$x = 12.5$$

~~But~~
~~But~~

$$\text{But } AC = y_3 - y_1$$

$$CB = y_2 - y_3$$

$$1(y_1 - y_2) - 3(y_2 - y_3) = 0$$

$$1(y_1 - y_2) - 3(y_2 - y_3) = 0$$

$$y_1 - y_2 + 2y_3 = 0$$

$$\frac{y_1}{1} = \frac{18}{4}$$

$$= 4.5$$