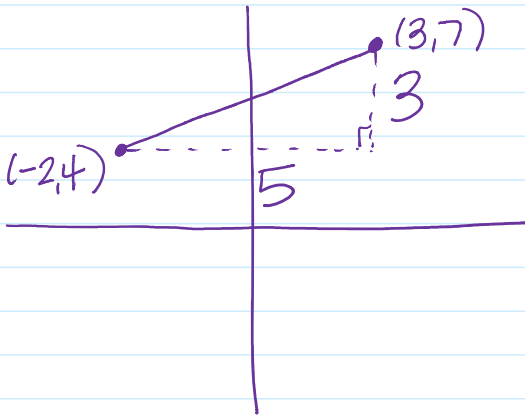


- ① Find the distance between $(3,7)$ and $(-2,4)$.



$$\begin{aligned} d^2 &= 5^2 + 3^2 \\ &= 25 + 9 \\ &= 34 \end{aligned}$$

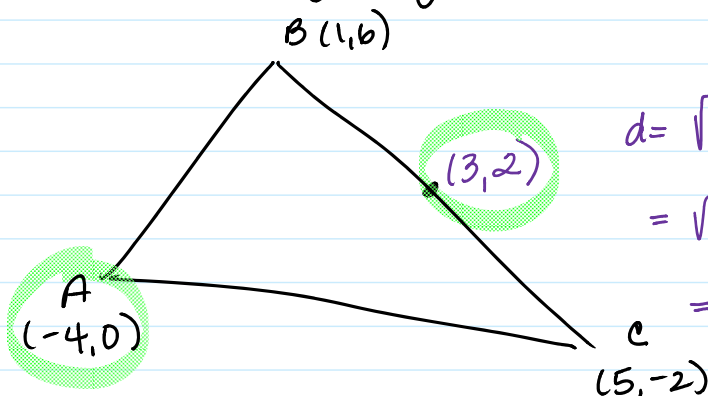
$$d = \sqrt{34}$$

Formula: $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

- ② Find the distance between $(-3,8)$ and $(6,-2)$.

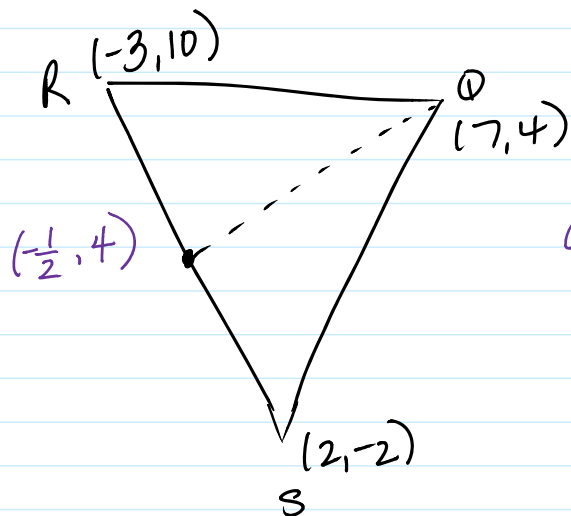
$$\begin{aligned} d &= \sqrt{(-3-6)^2 + (8-(-2))^2} \\ &= \sqrt{81+100} \\ &= \sqrt{181} \end{aligned}$$

- ③ Find the length of the median from A.



$$\begin{aligned} d &= \sqrt{(-4-3)^2 + (0-2)^2} \\ &= \sqrt{49+4} \\ &= \sqrt{53} \end{aligned}$$

- (4) Find the length of the median from Q.



$$\begin{aligned}d &= \sqrt{\left(-\frac{1}{2} - 7\right)^2 + (4 - 4)^2} \\&= \sqrt{\left(-\frac{15}{2}\right)^2} \\&= \frac{15}{2}\end{aligned}$$

- (5) The distance between $(x, -1)$ and $(1, 5)$ is $2\sqrt{10}$. Solve for x .

$$\left(2\sqrt{10}\right)^2 = \left(\sqrt{(x-1)^2 + (-1-5)^2}\right)^2$$

$$\begin{aligned}40 &= (x-1)^2 + 36 \\ \pm \sqrt{4} &= \sqrt{(x-1)^2}\end{aligned}$$

$$\pm 2 = x - 1$$

$$1 \pm 2 = x$$

$$x = 3, -1$$

- (6) The distance between $(2, y)$ and $(7, 5)$ is $5\sqrt{5}$. solve for y .

$$5\sqrt{5} = \sqrt{(2-7)^2 + (y-5)^2}$$

$$125 = 25 + (y-5)^2$$

$$100 = (y-5)^2$$

$$\pm 10 = y - 5$$

$$5 \pm 10 = y$$

$$y = -5, 15$$

① Find the length of the median, \overline{AB} .

