

Find the area and perimeter

Warm-up

ex 1    A(6, 4)    B(-6, -4)    C(-3, -9)    D(9, -1)

$$d_{AB} = \sqrt{(-6-6)^2 + (-4-4)^2} = \sqrt{144 + 64} = \sqrt{208} \approx 14.4$$

$$d_{BC} = \sqrt{(-3-6)^2 + (-9-4)^2} = \sqrt{9 + 25} = \sqrt{34} \approx 5.8$$

$$d_{CD} = \sqrt{(9-3)^2 + (-1-9)^2} = \sqrt{144 + 64} = \sqrt{208} \approx 14.4$$

$$d_{AD} = \sqrt{(9-6)^2 + (-1-4)^2} = \sqrt{9 + 25} = \sqrt{34} \approx 5.8$$

Area:  $l \cdot w = (5.8)(14.4) = \boxed{83.52 \text{ units}^2}$

Perimeter: Add all sides =  $14.4 + 5.8 + 14.4 + 5.8 = \boxed{40.4 \text{ units}}$

$$\left(x_1 + \frac{a}{a+b}(x_2 - x_1), y_1 + \frac{a}{a+b}(y_2 - y_1)\right)$$

Ex. #2 - Determine the point P that partitions the directed line segment  $\overline{AB}$  into a ratio of 1:1, where A (-5,2) and B (3,6). a b

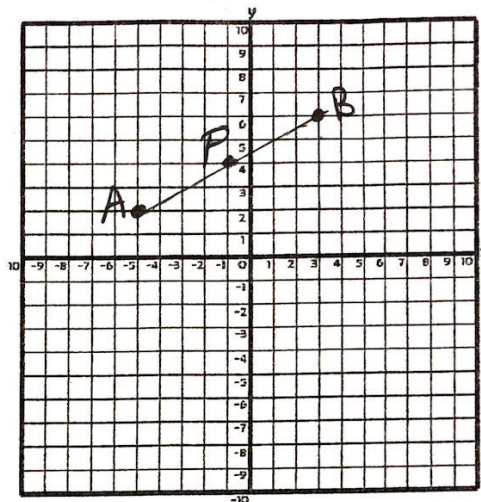
$x_1, y_1$        $x_2, y_2$

$$\left(-5 + \frac{1}{1+1}(3 - (-5)), 2 + \frac{1}{1+1}(6 - 2)\right)$$

$$\left(-5 + \frac{1}{2}(8), 2 + \frac{1}{2}(4)\right)$$

$$(-5 + 4, 2 + 2)$$

$$\boxed{(-1, 4)}$$



OR for 1:1, you can use midpoint formula

$$\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right) = \left(\frac{-5 + 3}{2}, \frac{2 + 6}{2}\right) = \left(\frac{-2}{2}, \frac{8}{2}\right) = \boxed{(-1, 4)}$$

Ex. #3 - Determine the point P that partitions the directed line segment  $\overline{AB}$  into a ratio of 2:3, where A (1,-5) and B (9,-1). a b

$x_1, y_1$        $x_2, y_2$

$$\left(1 + \frac{2}{2+3}(9 - 1), -5 + \frac{2}{2+3}(-1 - (-5))\right)$$

$$\left(1 + \frac{2}{5}(8), -5 + \frac{2}{5}(4)\right)$$

$$\boxed{(4.2, -3.4)}$$

