

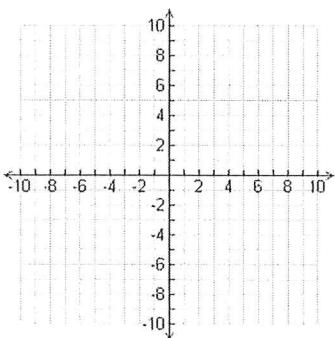
Name: Key

Hour: _____

Distance and Midpoint Homework #1

Directions: Use the Pythagorean Theorem or Distance Formula to find the distance of each segment, and then find the midpoint of each segment. **You must simplify radicals and fractions – no decimals!!!!**

1. G(2,6), H(-1,4)

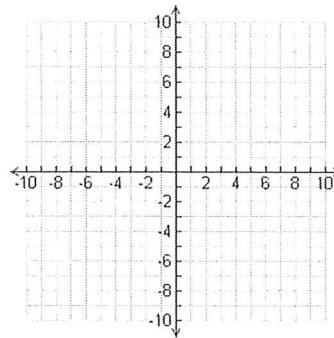


Distance: $\sqrt{13}$

Midpoint: $(\frac{1}{2}, 5)$

Slope: $+\frac{2}{3}$

2. J(7,10), K(-4,5)

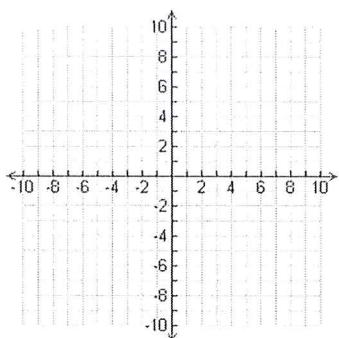


Distance: $\sqrt{146}$

Midpoint: $(\frac{3}{2}, \frac{15}{2})$

Slope: $+\frac{5}{11}$

3. D(0,2), E(4,5)



Distance: 5

Midpoint: $(2, \frac{7}{2})$

Slope: $\frac{3}{4}$

Directions: M is the midpoint of \overline{XY} . Find the missing endpoint's coordinates based on the given information.

4. M(2,3), X(-1,5) Find Y(x,y)

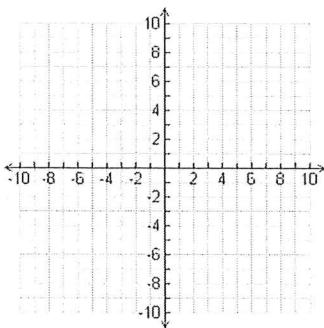
Y(5, 1)

5. M(3,1), Y(-4,7) Find X(x,y).

X(10, -5)

Find the perimeter and area of each figure with the given vertices.

6.) J(-3,-3), K(3,2), and L(3,-3)



$$\begin{aligned} KL &= 5 \\ JL &= 6 \end{aligned} \quad \left. \begin{array}{l} \text{Just} \\ \text{counted.} \end{array} \right\}$$

$$JK^2 = 5^2 + 6^2$$

$$JK = \sqrt{61}$$

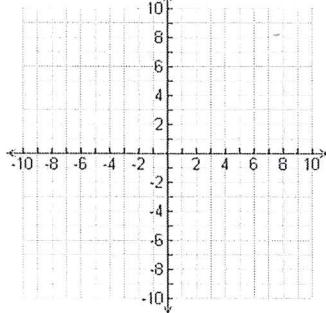
$$P = 5 + 6 + \sqrt{61}$$

$$P = 11 + \sqrt{61}$$

$$A = \frac{1}{2} \cdot 5 \cdot 6$$

$$A = 15 \text{ units}^2$$

- 7.) P(-1,1), O(3,4), R(6,0) and S(2,-3)



$$PQ^2 = 3^2 + 4^2$$

$$PQ = \sqrt{25}$$

$$PQ = 5$$

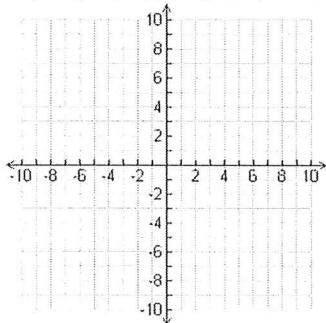
all are 5

$$P=20$$

$$A = l \cdot w$$

$$A = 25 \text{ units}^2$$

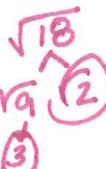
- 8.) T(-2,3), U(1,6), V(5,2), and W(2,-1)



$$TU^2 = 3^2 + 5^2$$

$$TU = 3\sqrt{2}$$

$$VW = 3\sqrt{2}$$



$$TW^2 = 4^2 + 4^2$$

$$TW = 4\sqrt{2}$$

$$JV = 4\sqrt{2}$$

$$P = 3\sqrt{2} + 3\sqrt{2} + 4\sqrt{2} + 4\sqrt{2}$$

$$P = 14\sqrt{2}$$

$$A = l \cdot w$$

$$A = 3\sqrt{2} \cdot 4\sqrt{2} = 3 \cdot 4 \cdot \sqrt{2} \cdot \sqrt{2}$$

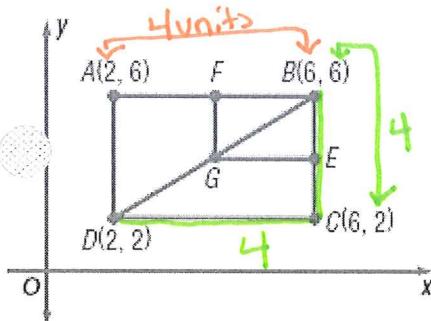
$$A = 12\sqrt{4} = 12 \cdot 2$$

$$A = 24 \text{ units}^2$$

Use figure to the left for 6-8.

In this figure, \overline{GE} bisects \overline{BC} and \overline{GF} bisects \overline{AB} . $\overline{FG} \perp \overline{GE}$.

9. Find the coordinates of F, E and G.



*Cut in half.
(midpt)*

$$F: (4, 6)$$

$$E: (6, 4)$$

$$G: (4, 4)$$

10. Find the following lengths by calculating the distance between each endpoint.

$$BD^2 = 4^2 + 4^2$$

$$BD = 4\sqrt{2}$$

$$BG_1 = \frac{1}{2} BD$$

$$BG_1 = \frac{1}{2} 4\sqrt{2} = 2\sqrt{2}$$

$$AB = 4 \quad BE = 2$$

$$BC = 4 \quad BF = 2$$

$$CD = 4 \quad BG = 2\sqrt{2}$$

$$BD = 4\sqrt{2} \quad DG = 2\sqrt{2}$$

11. Name conclusions or relationships that you can conclude based on the information you found in #9 and 10. It must be based on what YOU found, NOT what was given to you.

Students need to have a
true statement
Answers will vary.