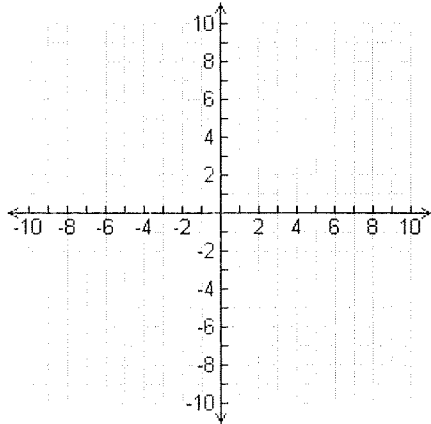


## Distance and Midpoint Practice

**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!!!!

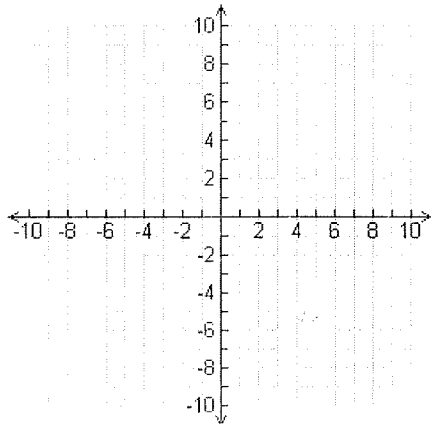
1. G(-2,-6), H(6,9)



Distance:  $\sqrt{289}$

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

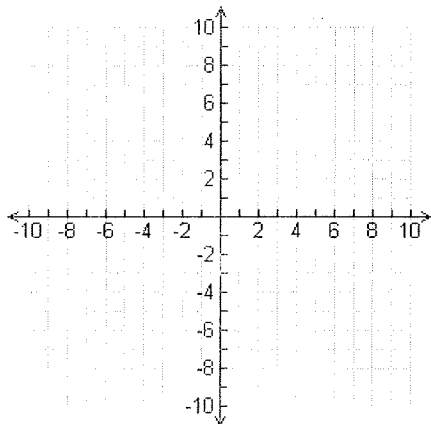
2. J(-3,4), K(2,-4)



Distance:  $\sqrt{89}$

Midpoint:  $(-\frac{1}{2}, 0)$

3. D(2,0), E(8,6)



Distance:  $6\sqrt{2}$

Midpoint:  $(5, 3)$

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

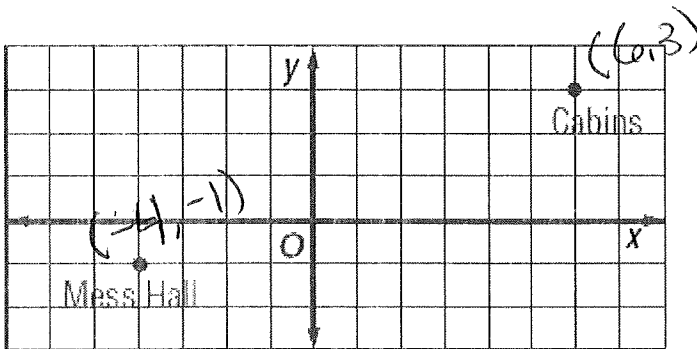
4. M(-1,5), X(-4,3) Find Y(x,y)

$$Y(2,7)$$

5. M(-2,2), Y(2,8) Find X(x,y).

$$X(-6, -4)$$

6. Scout Troop 175 is designing their new campground by first mapping everything on a coordinate grid. They have found a location for the mess hall and for their cabins. They want the bathrooms to be halfway between these two. What will the coordinates of the location of the bathrooms?



$$\begin{aligned} \text{midpoint} & \left( \frac{-4+6}{2}, \frac{-1+3}{2} \right) \\ & = (1, 1) \end{aligned}$$

7. Describe a way to divide a segment into fourths.

Find the segment's midpoint & find the midpoint of both segments

8. Explain how the distance formula and Pythagorean Theorem are related.

The distances between 2 points is the lengths of the hypotenuse of a right  $\Delta$