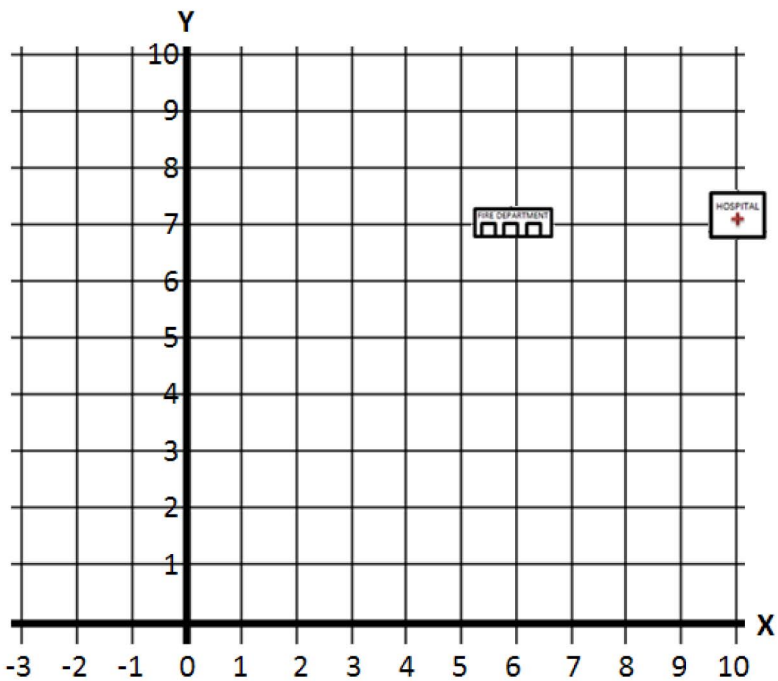
Name_____ Date_____

Ordered Pairs

1. On the map below, the fire department and the hospital have one matching coordinate. Determine the proper order of the ordered pairs in the map, and write the correct ordered pairs for the locations of the fire department and hospital. Indicate which of their coordinates are the same.



2. On the map above, locate and label the locations of each description below:
   a. The local bank has the same first coordinate as the fire department, but its second coordinate is half of the fire department's second coordinate. What ordered pair describes the location of the bank? Locate and label the bank on the map using point B.

   b. The Village Police Department has the same second coordinate as the bank, but its first coordinate is -2. What ordered pair describes the location of the Village Police Department? Locate and label the Village Police Department on the map using point P.

1. Use the set of ordered pairs below to answer each question.

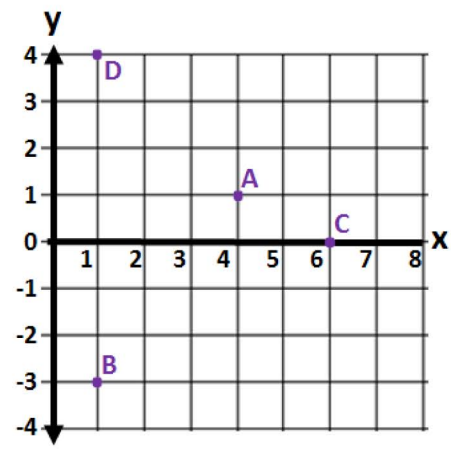
$$\{(4, 20), (8, 4), (2, 3), (15, 3), (6, 15), (6, 30), (1, 5), (6, 18), (0, 3)\}$$

   a. Write the ordered pair(s) whose first and second coordinate have a greatest common factor of 3.

   b. Write the ordered pair(s) whose first coordinate is a factor of its second coordinate.

   c. Write the ordered pair(s) whose second coordinate is a prime number.

2. Write ordered pairs that represent the location of points A, B, C, and D, where the first coordinate represents the horizontal direction, and the second coordinate represents the vertical direction.



Extension:

3. Write ordered pairs of integers that satisfy the criteria in each part below. Remember that the origin is the point whose coordinates are $(0, 0)$. When possible, give ordered pairs such that (i) both coordinates are positive, (ii) both coordinates are negative, and (iii) the coordinates have opposite signs in either order.

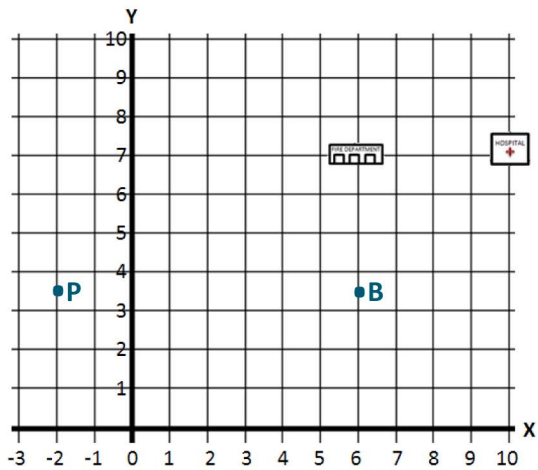
   a. These points' vertical distance from the origin is twice their horizontal distance.

   b. These points' horizontal distance from the origin is two units more than the vertical distance.

   c. These points' horizontal and vertical distances from the origin are equal but only one coordinate is positive.

1. On the map below, the fire department and the hospital have one matching coordinate. Determine the proper order of the ordered pairs in the map, and write the correct ordered pairs for the locations of the fire department and hospital. Indicate which of their coordinates are the same.

   The order of the numbers is (x, y); fire department: $(6, 7)$ and hospital: $(10, 7)$; they have the same second coordinate.



2. On the map above, locate and label the location of each description below:

   a. The local bank has the same first coordinate as the fire department, but its second coordinate is half of the fire department's second coordinate. What ordered pair describes the location of the bank? Locate and label the bank on the map using point B.

      $(6, 3.5)$; See the map image for the correct location of point B.

   b. The Village Police Department has the same second coordinate as the bank, but its first coordinate is -2. What ordered pair describes the location of the Village Police Department? Locate and label the Village Police Department on the map using point P.

      $(-2, 3.5)$; See the map image for the correct location of point P.

1. Use the set of ordered pairs below to answer each question.

   $$\{(4, 20), (8, 4), (2, 3), (15, 3), (6, 15), (6, 30), (1, 5), (6, 18), (0, 3)\}$$

   a. Write the ordered pair(s) whose first and second coordinate have a greatest common factor of 3.

      $(15, 3)$ and $(6, 15)$

   b. Write the ordered pair(s) whose first coordinate is a factor of its second coordinate.

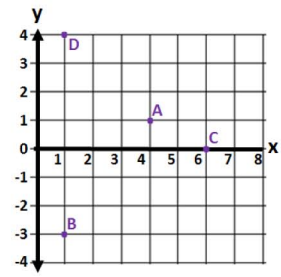
      $(4, 20)$, $(6, 30)$, $(1, 5)$, and $(6, 18)$

c. Write the ordered pair(s) whose second coordinate is a prime number.

$(2,3)$, $(15,3)$, $(1,5)$, *and* $(0,3)$

2. Write ordered pairs that represent the location of points A, B, C, and D, where the first coordinate represents the horizontal direction, and the second coordinate represents the vertical direction.

$A\ (4,1);\ B\ (1,-3);\ C\ (6,0);\ D\ (1,4)$



Extension:

3. Write ordered pairs of integers that satisfy the criteria in each part below. Remember that the origin is the point whose coordinates are $(0,0)$. When possible, give ordered pairs such that (i) both coordinates are positive, (ii) both coordinates are negative, and (iii) the coordinates have opposite signs in either order.

a. These points' vertical distance from the origin is twice their horizontal distance.

Answers will vary; examples are $(5,10)$, $(-2,4)$, $(-5,-10)$, $(2,-4)$.

b. These points' horizontal distance from the origin is two units more than the vertical distance.

Answers will vary; examples are $(3,1)$, $(-3,1)$, $(-3,-1)$, $(3,-1)$.

c. These points' horizontal and vertical distances from the origin are equal but only one coordinate is positive.

Answers will vary; examples are $(3,-3)$, $(-8,8)$.