

Plotting Points Agenda

This lesson is for one class period.

Give pretest

Introduce the coordinate plane, define ordered pair, origin

Use worksheets for in class or homework.

Resource: GED Skill Book: Mathematics- Number Operations and Algebra (pp.37-39)

Give posttest.

Name Algebra--Graphing

Date 8/16/17

Pretest: Circle the number of your proficiency in the following areas.

Posttest: Put an X on the number of your proficiency in the following areas.

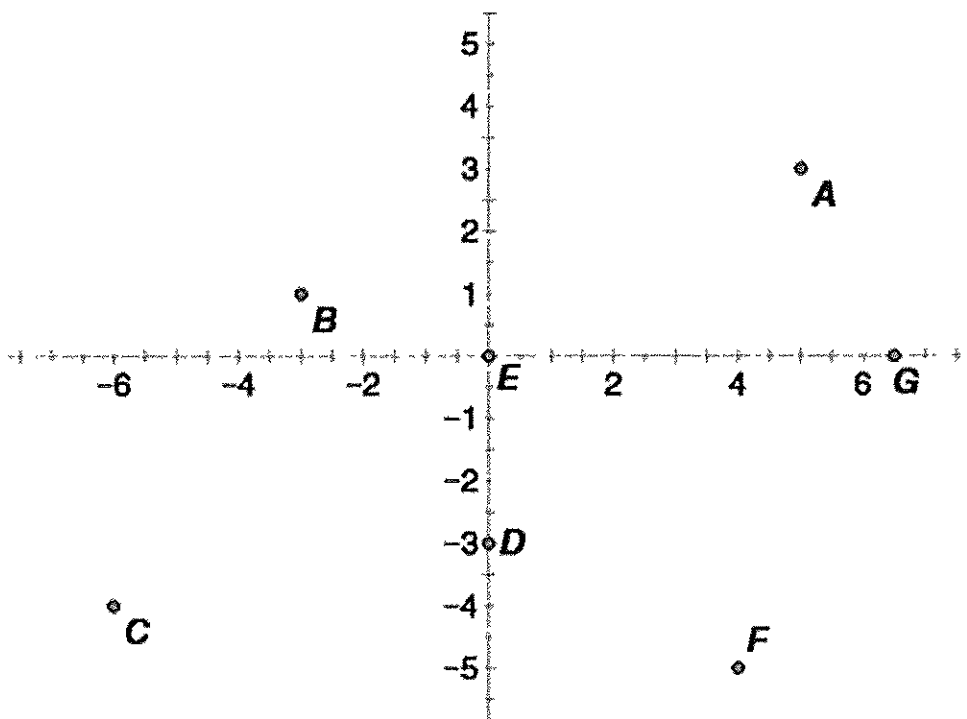
Unit: Plotting Points

Standards: A.5, A.5.a, A.5.b

Learning Goal: Students will be able to identify a point by ordered pair (x,y) and plot a point given (x,y) data

GOALS				
4	Student demonstrates the ability to create graphing problems and can instructed others how to identify points on a graph.			
0	1	2	3	4
3	Goal: Students will be able to identify a point by ordered pair (x,y) and plot a point given (x,y) data without aide.			
0	1	2	3	4
2	Student can sometimes (50%) graph points and identify points without help.			
0	1	2	3	4
1	Student has an understanding of what a point is on a 2 Dimensional graph.			
0	1	2	3	4

Pre-Test Plotting Points



1. Identify point B by giving the order pair.
2. Identify point A by giving the order pair.
3. Plot point X (2, 3).
4. Plot point Y (-3, 5).

4.1 Graphing and Labeling Ordered Pairs.

Cartesian Coordinate System: formed by the intersection of two lines, the horizontal and vertical axis.

History: The Cartesian coordinate system was developed by the French mathematician Rene Descartes during an illness. As he lay in bed sick, he saw a fly buzzing around on the ceiling, which was made of square tiles. As he watched he realized that he could describe the position of the fly by the ceiling tile he was on. After this experience he developed the coordinate plane to make it easier to describe the position of objects.

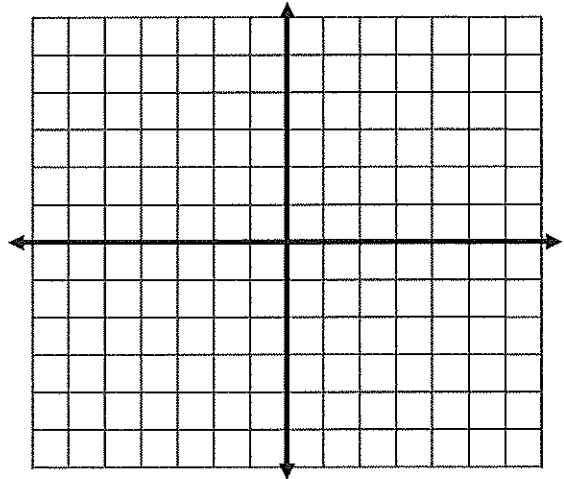
X-Axes: horizontal line

Y-Axes: vertical line

Ordered Pair: a set of numbers (coordinates) written in the form (x, y) .

X-coordinate: x value that corresponds to the x-axis. It is the first coordinate in an ordered pair. Think: x comes before y in the alphabet.

Y-coordinate: y value that corresponds to the y-axis. It is the last coordinate in an ordered pair.



Quadrants: the x-axis and y-axis separate the coordinate plane into four regions. The axes are not located in any of the quadrants. Quadrant 1 starts in the upper right hand corner and continue numbering quadrants in a counter-clockwise fashion.

Graph: an ordered pair means to draw a dot at the point on the coordinate plane that corresponds to the ordered pair.

Origin: the center of the coordinate system. It has the ordered pair value of $(0, 0)$.

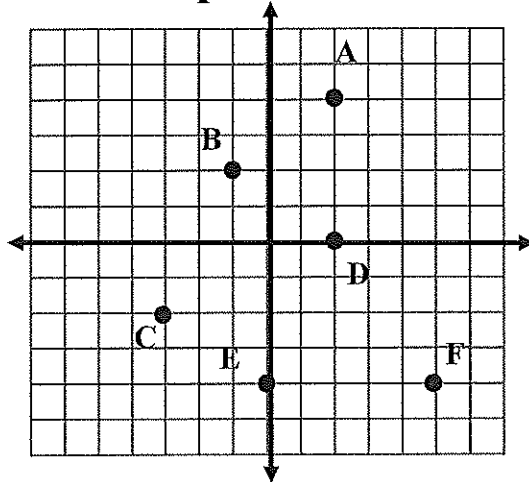
IMPORTANT!!! In an ordered pair:

- The x-coordinate tells you to move left (if it is negative) or right (if it is positive) from the origin (center).
- The y-coordinate tells you to move up (if it is positive) or down (if it is negative).
- In the ordered pair $(-3, 4)$ you would move _____ 3 spaces and _____ 4 spaces from the origin. The resulting ordered pair would be in the _____ quadrant.
- In the ordered pair $(2, 0)$ you would move _____ 2 spaces and _____ 0 spaces from the origin. The resulting ordered pair would be on the _____ axis.

4.1 Graphing Ordered Pairs: Practice!

Write the ordered pair for each point.

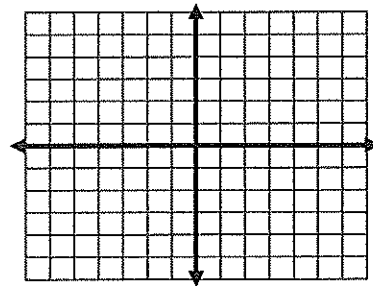
1. A _____
2. B _____
3. C _____
4. D _____
5. E _____
6. F _____



Name the quadrant in which the point is located.

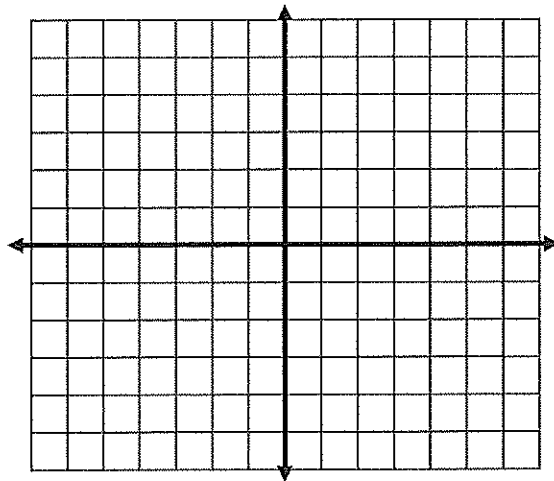
7. (5, 2) _____
8. (-3, -1) _____
9. (-2, 3) _____
10. (6, 0) _____
11. (0, -2) _____
12. (4, -3) _____

Label the quadrants!



Graph and Label each point on the coordinate plane.

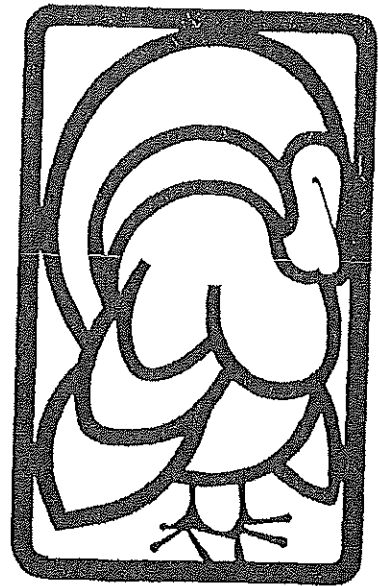
13. A(5, -2)
14. B(3, 5)
15. C(-3, 0)
16. D(-3, 4)
17. E(-3, -3)
18. F(-5, 1)
19. G(2, -1)
20. H(0, 4)

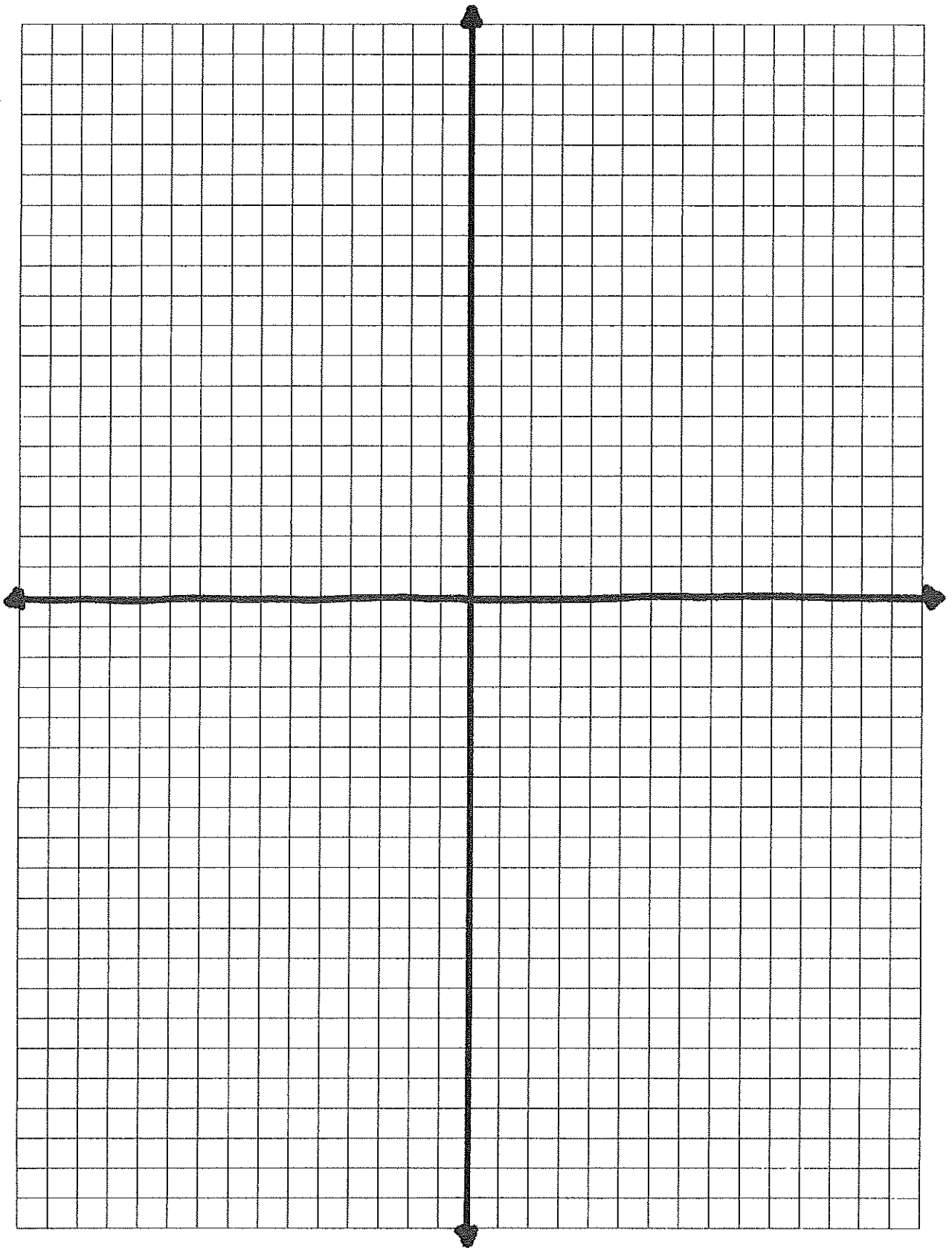


You're Invited for Thanksgiving Dinner

Connect consecutive points with straight lines. Start new line after the word "Stop".

- | | | | | |
|------------|------------|----------|-----------|-----------------|
| (6, 9) | (-13, -5) | (4, 2) | (14, 8) | (5, 7) |
| (6, 8) | (-13, 0) | (2, 0) | (17, 6) | Stop (dot only) |
| (7, 9) | (-10, 9) | (1, -3) | (13, 2) | |
| Stop | (-12, 9) | (1, -4) | Stop | (0, 11) |
| | (-12, 4) | (3, -6) | | (0, 12) |
| (-11, -7) | (-14, 4) | (6, -7) | (17, 1) | (1, 11) |
| (-11, -10) | (-15, 6) | Stop | (17, -1) | (2, 14) |
| (-12, -7) | (-14, 5) | | Stop | (2, 16) |
| (-8, -5) | (-13, 5) | (-4, 1) | | (1, 17) |
| (-8, -2) | (-15, 10) | (-3, 1) | (-3, -7) | (-1, 18) |
| (-6, 1) | (-6, 16) | (-2, 0) | (-1, -7) | (-6, 16) |
| (-6, 8) | (-6, 15) | (-3, -7) | (-1, -10) | Stop |
| (-5, 1) | (-4, 10) | (-4, -7) | (-7, -10) | |
| (-4, 0) | (-3, 9) | (-4, 1) | (-7, -6) | |
| Stop | (-1, 9) | Stop | (-4, -7) | |
| | (0, 11) | | Stop | |
| (4, -10) | (-1, 11) | (1, 15) | | |
| (6, -10) | (-2, 13) | (1, 13) | (-4, 10) | |
| (6, -7) | Stop | (0, 13) | (-4, 2) | |
| (8, -7) | | (1, 14) | (-2, 2) | |
| (8, -10) | (6, 2) | Stop | (-1, 1) | |
| (10, -10) | (7, 6) | | (-1, 0) | |
| Stop | (7, 8) | (11, 8) | (-2, 0) | |
| | (6, 8) | (14, 8) | Stop | |
| (-3, 14) | (4, 7) | (11, 3) | | |
| (-4, 14) | (4, 6) | Stop | | |
| (-4, 15) | (3, 3) | | | |
| (-2, 16) | (3, 7) | (8, 3) | | |
| Stop | (4, 7) | (12, 1) | | |
| | Stop | (13, -1) | | |
| (-12, -10) | | (12, -5) | | |
| (-16, -10) | (17, 6) | (10, -7) | | |
| (-16, -9) | (17, 1) | (8, -7) | | |
| (-15, -9) | (13, 0) | Stop | | |
| (-13, -8) | Stop | | | |
| Stop | | (3, 6) | | |
| | (-11, -4) | (1, 7) | | |
| (13, -3) | (-11, -2) | (3, 7) | | |
| (17, -2) | (-10, -4) | Stop | | |
| (17, -1) | (-14, -6) | | | |
| (14, -1) | (-12, -10) | (5, -2) | | |
| Stop | (-11, -10) | (4, 0) | | |
| | Stop | (4, 5) | | |
| (7, 3) | | Stop | | |
| (9, 7) | | | | |
| (11, 8) | | | | |
| (9, 4) | | | | |
| Stop | | | | |



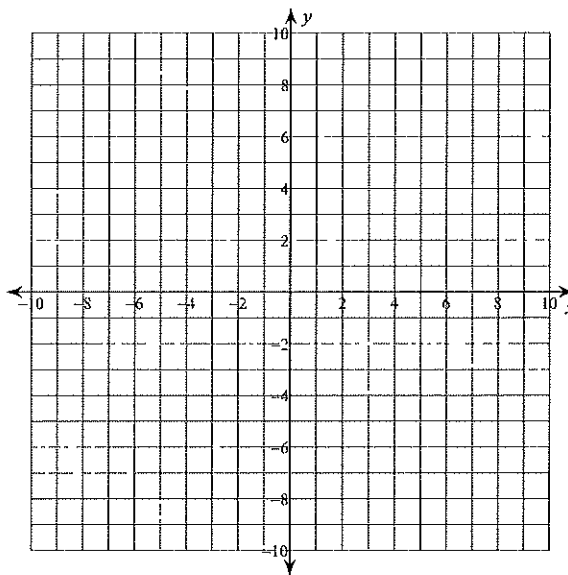
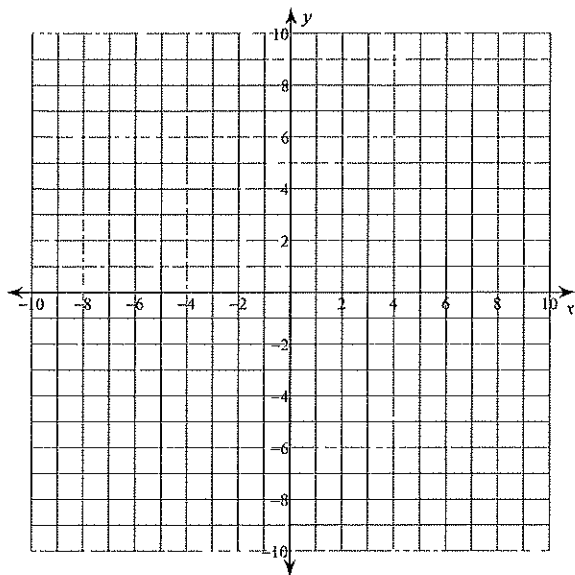


Points in the Coordinate Plane

Plot each point.

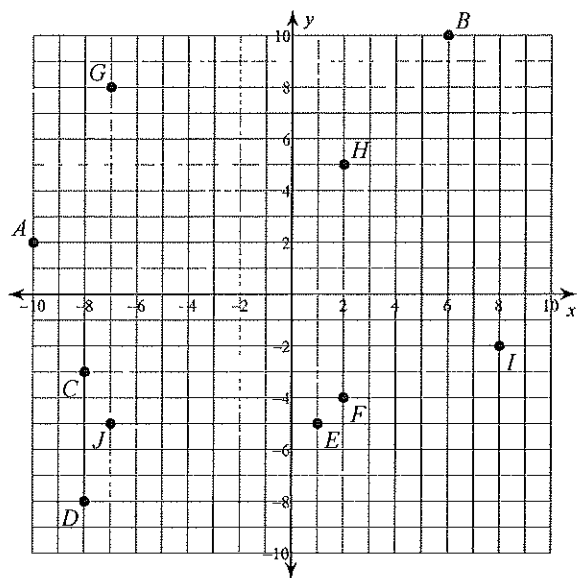
- 1) $J(5, 10)$ $I(1, 9)$ $H(6, -9)$
 $G(-6, 8)$ $F(9, 0)$ $E(-6, 0)$
 $D(-8, -4)$ $C(5, 0)$ $B(-1, -1)$
 $A(-8, -1)$

- 2) $A(7, 10)$ $B(0, 4)$ $C(-1, 10)$
 $D(-6, -6)$ $E(10, 0)$ $F(9, 7)$
 $G(-3, -4)$ $H(-4, -9)$ $I(4, 1)$
 $J(7, -9)$

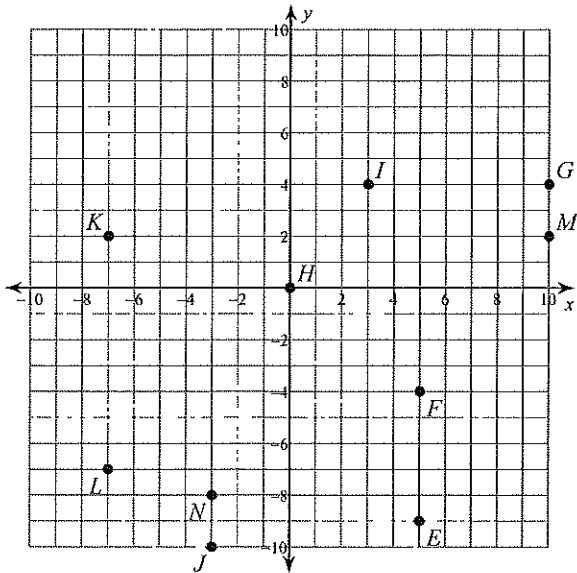


State the coordinates of each point.

3)



4)



State the quadrant or axis that each point lies in.

5) $L(-2, 1)$ $K(-3, -2)$ $J(3, 1)$

6) $T(-3, 5)$ $U(1, 0)$ $V(-5, 5)$

7) $S(5, -7)$ $T(7, 2)$ $U(-5, 4)$

8) $R(7, 0)$ $Q(8, -1)$ $P(3, 0)$

Critical thinking questions:

9) State the coordinates of the endpoints of a line segment that intersects the y -axis.

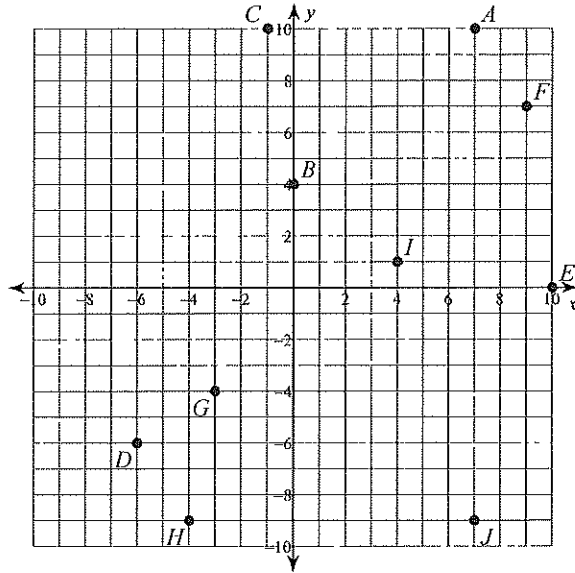
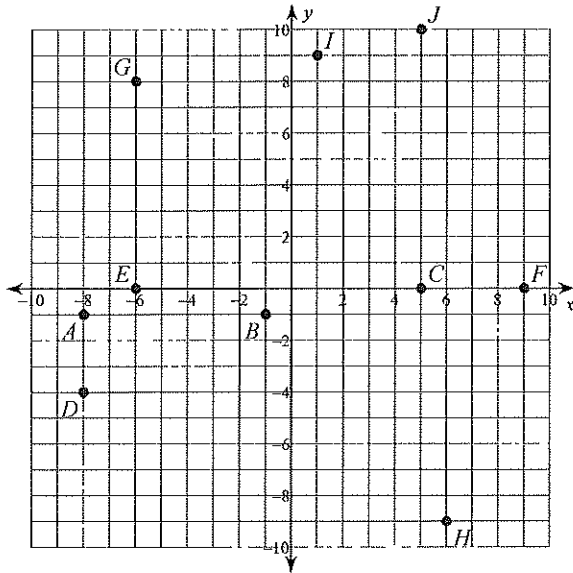
10) State the coordinates of the endpoints of a line segment that is not parallel to either axis, and does not intersect either axis

Points in the Coordinate Plane

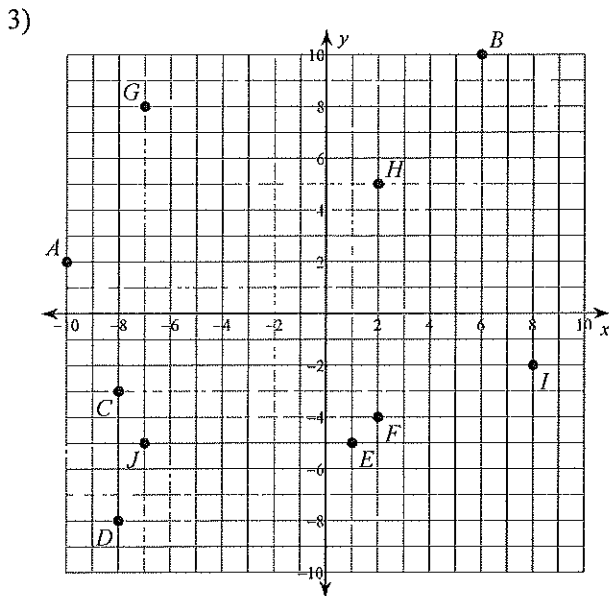
Plot each point.

- 1) $J(5, 10)$ $I(1, 9)$ $H(6, -9)$
 $G(-6, 8)$ $F(9, 0)$ $E(-6, 0)$
 $D(-8, -4)$ $C(5, 0)$ $B(-1, -1)$
 $A(-8, -1)$

- 2) $A(7, 10)$ $B(0, 4)$ $C(-1, 10)$
 $D(-6, -6)$ $E(10, 0)$ $F(9, 7)$
 $G(-3, -4)$ $H(-4, -9)$ $I(4, 1)$
 $J(7, -9)$

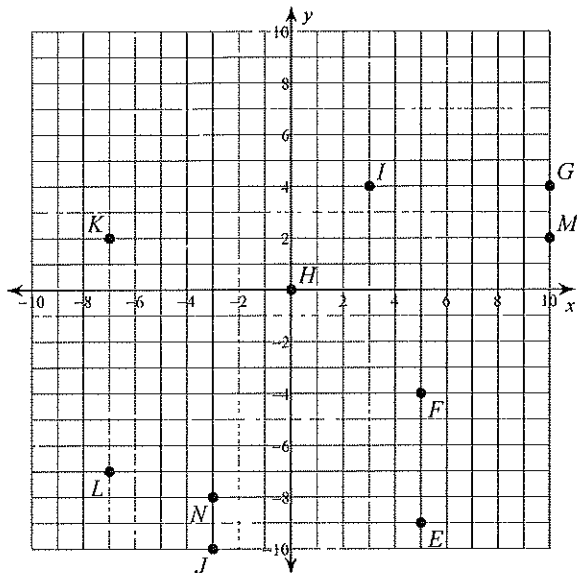


State the coordinates of each point.



- $A(-10, 2)$ $B(6, 10)$ $C(-8, -3)$
 $D(-8, -8)$ $E(1, -5)$ $F(2, -4)$
 $G(-7, 8)$ $H(2, 5)$ $I(8, -2)$
 $J(-7, -5)$

4)



$E(5, -9)$ $F(5, -4)$ $G(10, 4)$
 $H(0, 0)$ $I(3, 4)$ $J(-3, -10)$
 $K(-7, 2)$ $L(-7, -7)$ $M(10, 2)$
 $N(-3, -8)$

State the quadrant or axis that each point lies in.

5) $L(-2, 1)$ $K(-3, -2)$ $J(3, 1)$

L : II K : III J : I

6) $T(-3, 5)$ $U(1, 0)$ $V(-5, 5)$

T : II U : x-axis V : II

7) $S(5, -7)$ $T(7, 2)$ $U(-5, 4)$

S : IV T : I U : II

8) $R(7, 0)$ $Q(8, -1)$ $P(3, 0)$

R : x-axis Q : IV P : x-axis

Critical thinking questions:

9) State the coordinates of the endpoints of a line segment that intersects the y -axis.

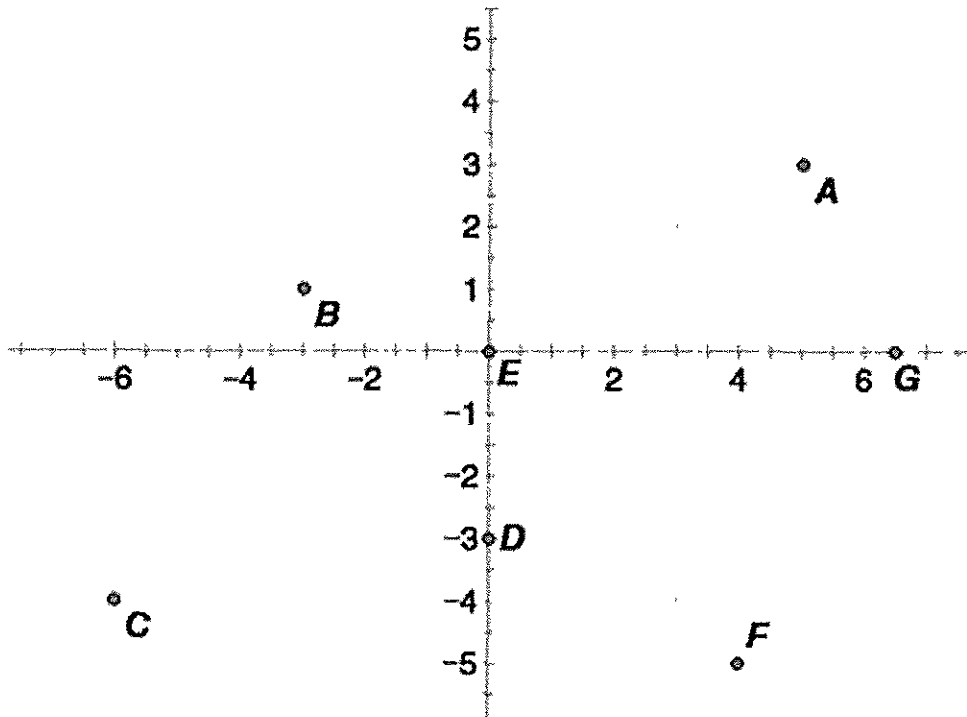
Many answers. Ex $(2, 2)$, $(-2, 2)$

10) State the coordinates of the endpoints of a line segment that is not parallel to either axis, and does not intersect either axis.

Many answers Ex $(2, 2)$, $(3, 3)$

Create your own worksheets like this one with **Infinite Geometry**. Free trial available at KutaSoftware.com

Post-Test Plotting Points



1. Identify point C by giving the order pair.
2. Identify point G by giving the order pair.
3. Plot point X (0, 3).
4. Plot point Y (2, -4).

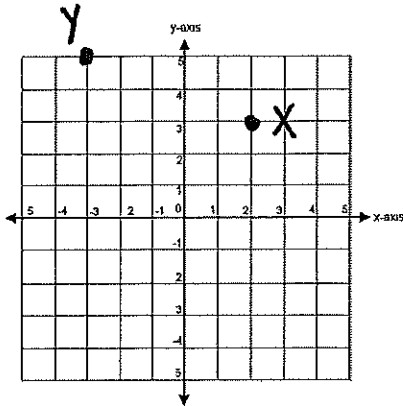
Plotting Points Pre-Test and Post Test Answers

Pretest Answers

1. $(-3, -1)$

2. $(5, 3)$

3 and 4 on graph



Posttest Answers

1. $(-6, -4)$

2. $(6.5, 0)$

3 and 4 on graph

