Unit 8: Geometry

This figure slides 7 units to the left and 3 units down.

$x = 2$

$y = 1.5$

P(2,-1.5)

p

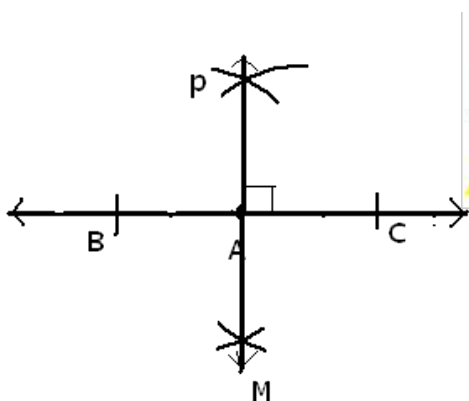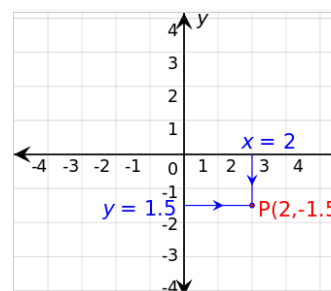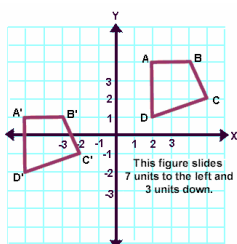B   A   C

M

t

a   2 / 1
            3 / 4

b   6 / 5
        7 / 8

Coordinate Graphing

Coordinate graphing is plotting points on a grid, often called a Cartesian grid. The grid has an **x** and a **y axis**.

The x axis is the horizontal axis (it goes from left to right).

The y axis is the vertical axis (it goes up and down).

The points that you plot are called **ordered pairs, (x,y).**
The first number in the ordered pair is the x coordinate, and it tells you how far to move to the left or the right. If the x coordinate is positive, move to the right, if the x coordinate is negative, move to the left.
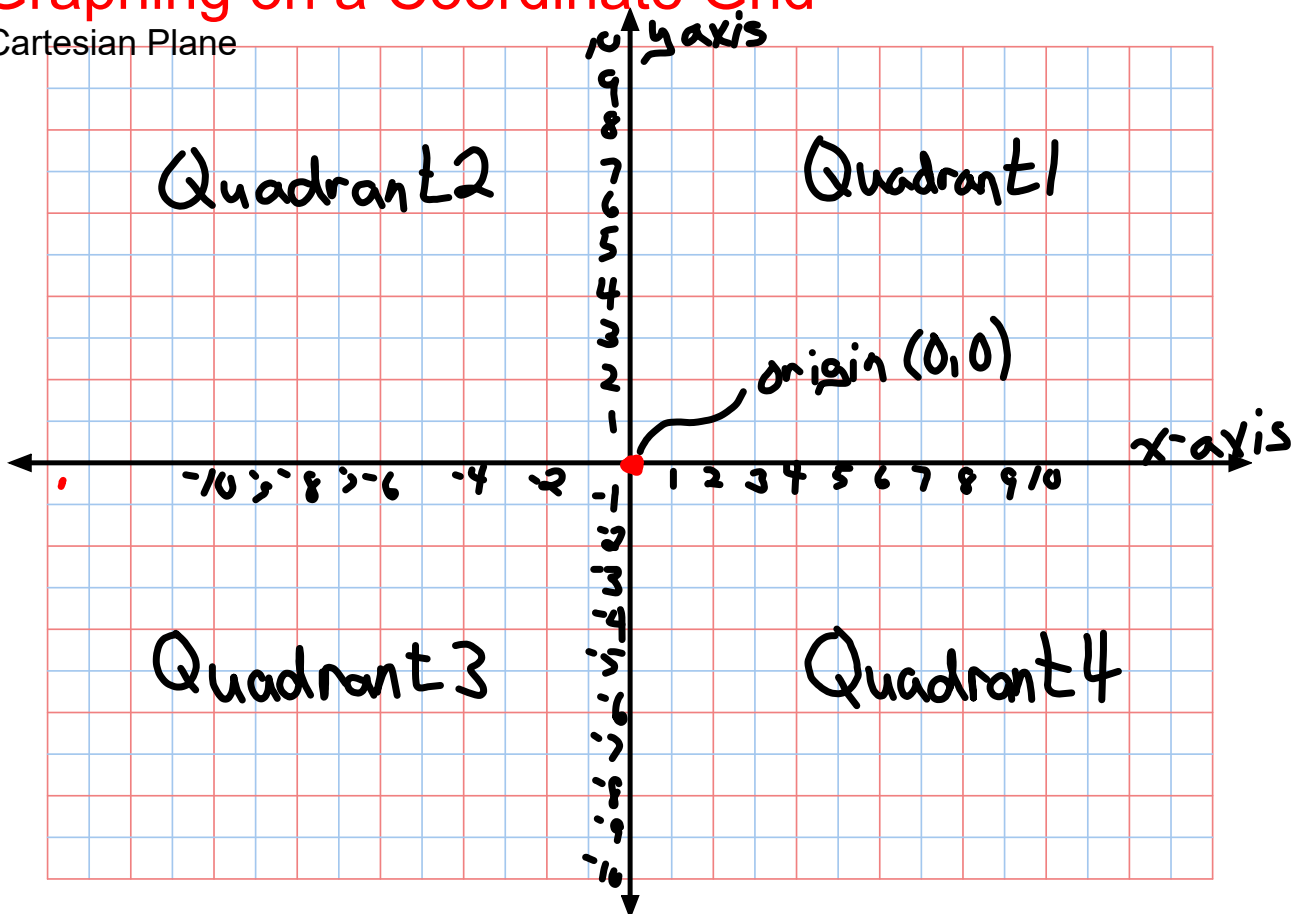
The second number in the ordered pair is the y coordinate and it tells you how far to move up or down. If the y coordinate is positive, move up, if it negative, go down.

You always start at the **origin, which is point (0,0).**

The grid is divided up into 4 sections that are called **quadrants**.

Graphing on a Coordinate Grid

Cartesian Plane

y axis

Quadrant 2

Quadrant 1

origin (0,0)

x-axis

Quadrant 3

Quadrant 4

The axes meet at the **origin**, (0,0).

A pair of coordinates is called called an **ordered pair**, (x,y).

What is the scale on each axis?

x, y-axis ⇒ Sale is
going up by 1
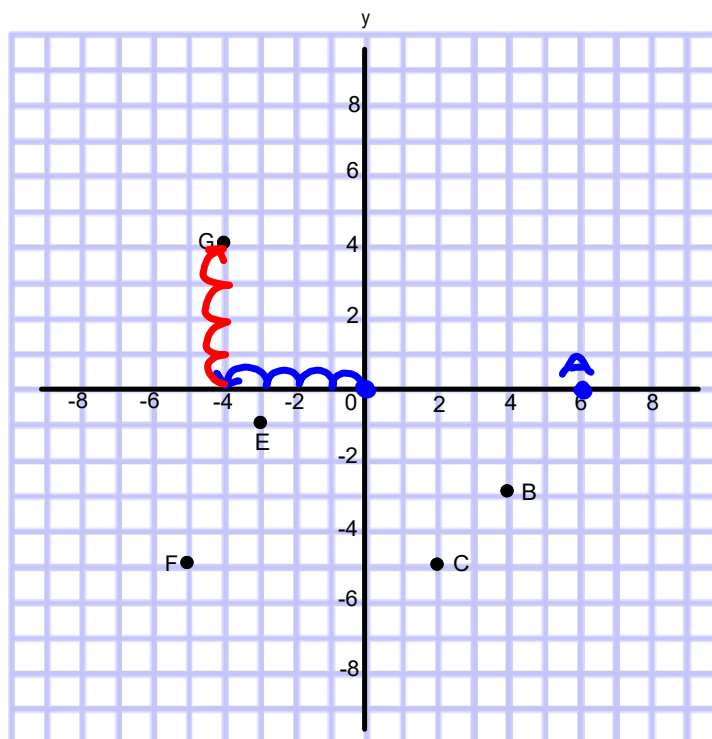
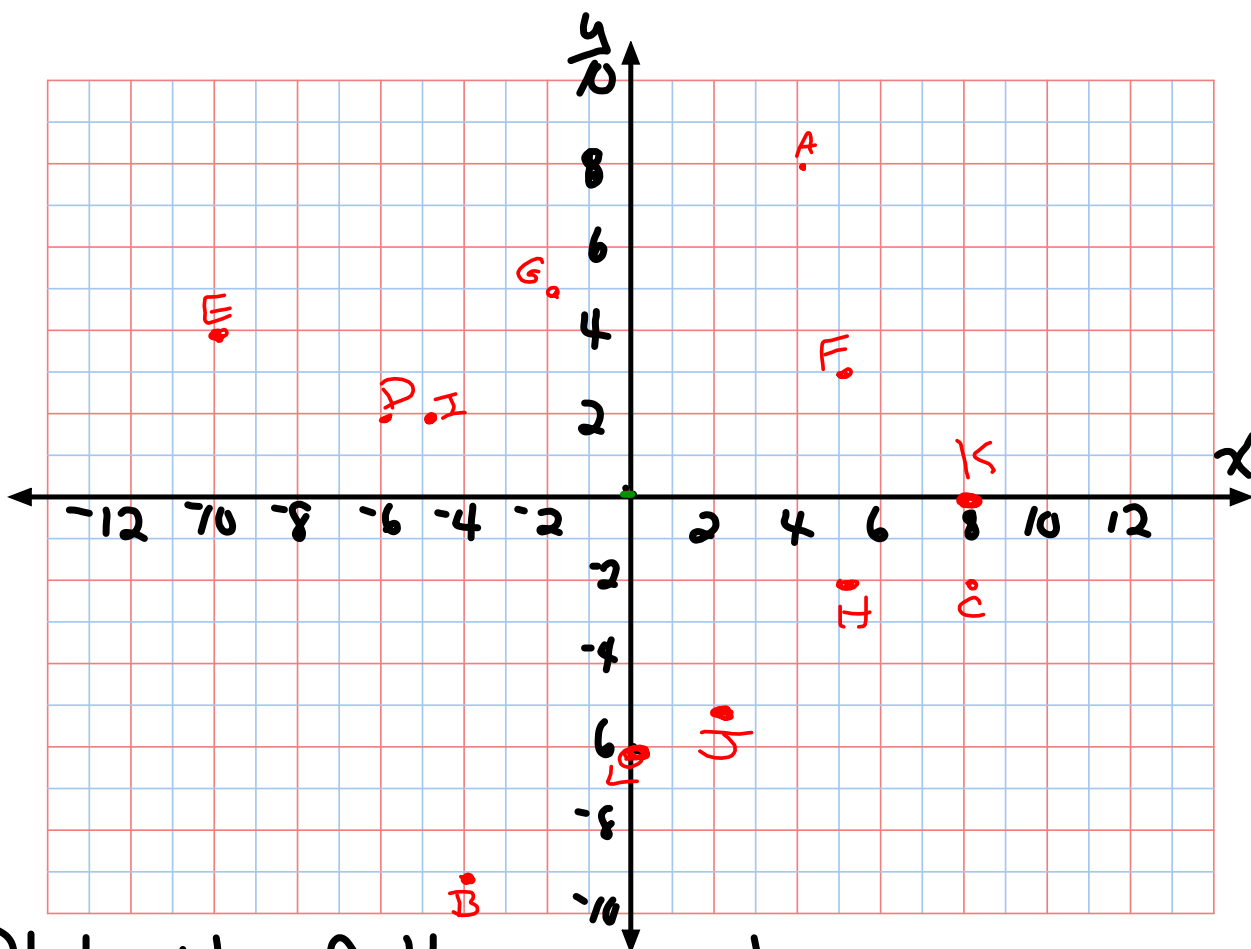Write the coordinates of each point.

(x, y)

G $(-4, 4)$

E $(-3, -1)$

F $(-5, -5)$
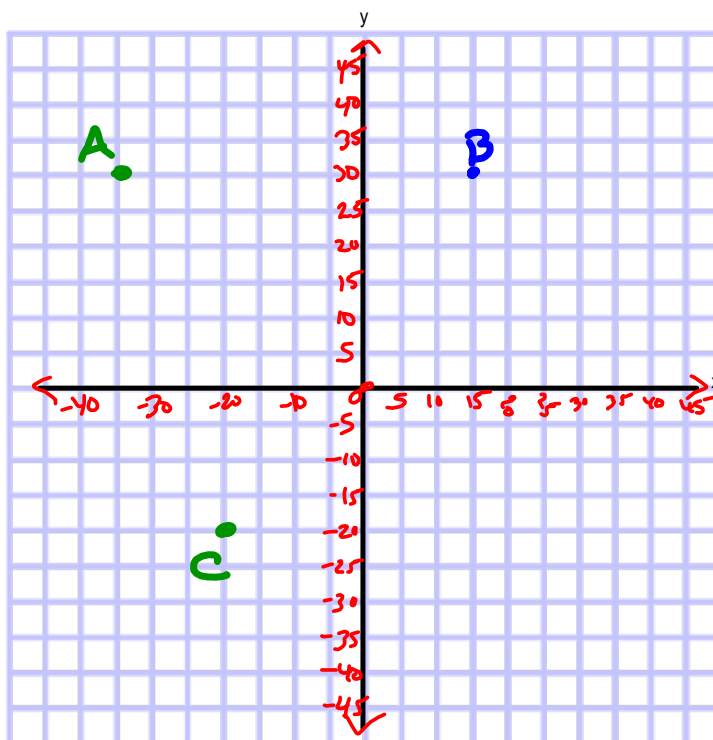
B $(4, -3)$

C $(2, -5)$

A $(6, 0)$

Plot the following points:

A(4, 8)   B(-4, -9)   C(+8, -2)

D(-6, +2)   E(-10, +4)   F(5, 3)

G(-2, 5)   H(5, -2)   I(-5, 2)

J(2, -5)   K(8, 0)   L(0, -6)

Determine an appropriate scale for plotting the following points: (-35,30), (15,30), (-20,-20) and (30,-20). Create the grid and plot the points.

→ 1 block = 5 units

Class / Homework

pg. 318   # 1 to # 6
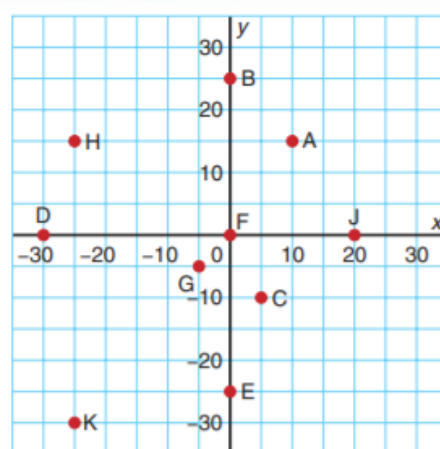
1. What is the scale on each axis?
   Write the coordinates of each point from A to K.
   x,y   goes up by 5

2. Use the coordinate grid to the right.
   Which points have:
   a) *x*-coordinate 0?   (0, #) B, F, E,
   b) *y*-coordinate 0? (#, 0)
   c) the same *x*-coordinate?
   d) the same *y*-coordinate?
   e) equal *x*- and *y*-coordinates?
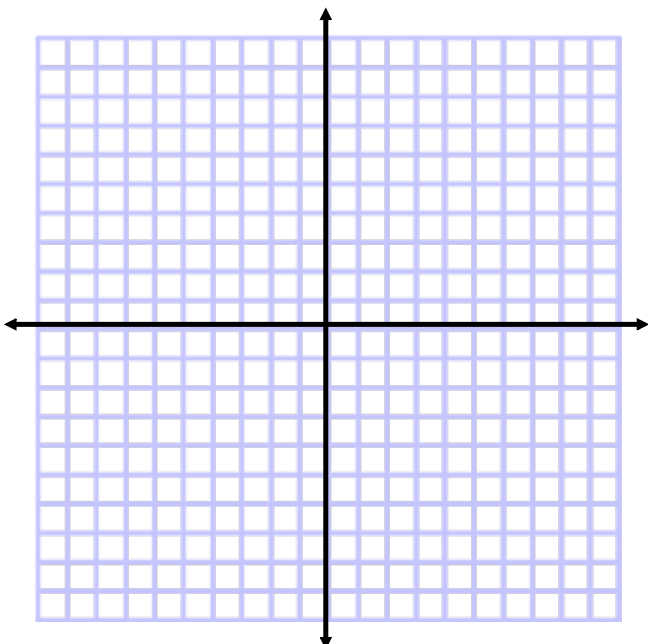   f) *y*-coordinate 2?

1) 2 blocks = 10
   1 blocks = 5

3. Draw a coordinate grid. Look at the ordered pairs below.
Label the axes. How did you choose the scale?
Plot each point.

a) A(30, −30)   b) B(25, 0)   c) C(−10, 35)

d) D(−15, 40)   e) E(15, 5)   f) F(0, −20)

g) O(0, 0)   h) H(−20, −5)   i) I(−40, 0)

Which point is the origin?

4. How could you use the grid in question 3 to plot these points?

a) K(3, 5)   b) P(−10, 2)   c) R(−7, −8)

5. Which quadrant has all negative coordinates? All positive coordinates? Both positive and negative coordinates?

6. **a)** Plot these points: A(0, 5), B(−1, 4), C(−1, 3), D(−2, 3),
E(−3, 2), F(−2, 1), G(−1, 1), H(−1, 0), J(0, −1), K(1, 0),
L(1, 1), M(2, 1), N(3, 2), P(2, 3), R(1, 3), S(1, 4)

   b) Join the points in order. Then join S to A.

   c) Describe the shape you have drawn.