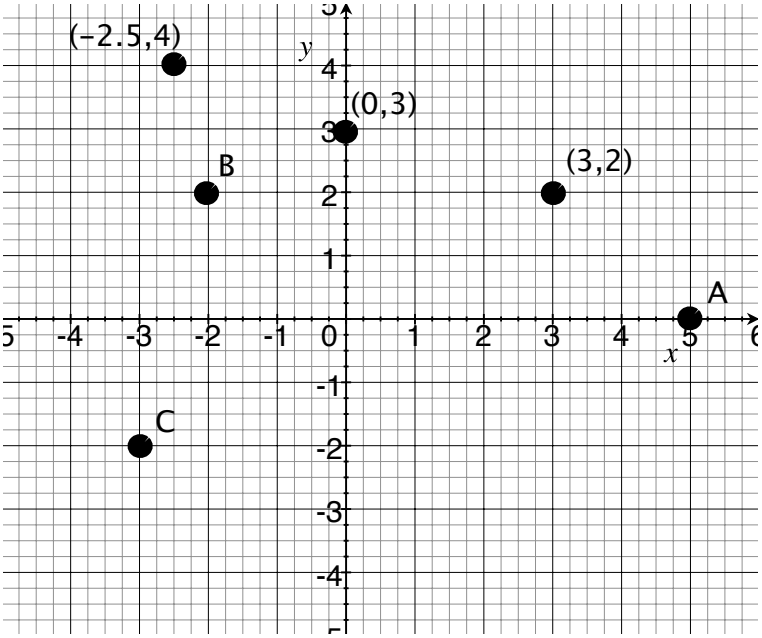
Graphs

While working in a group make sure you:

- Expect to make mistakes but be sure to reflect/learn from them!
- Are civil and are aware of your impact on others.
- Assume and engage with the strongest argument while assuming best intent.

The cartesian plane uniquely identifies all the points on a plane with two coordinates called an ordered pair.

For example, the point (-2.5,4) corresponds to the point 2.5 units to the left of the y-axis, and 4 units above the x-axis.



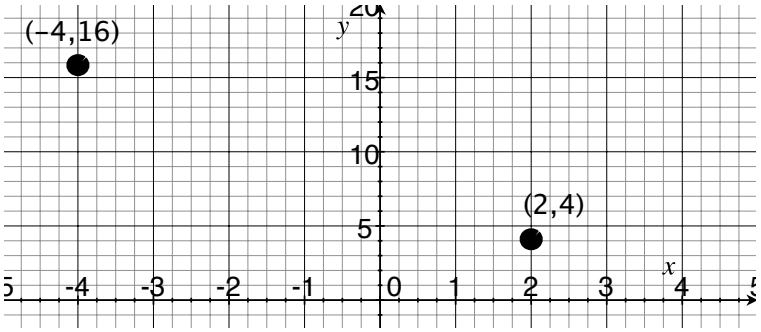
1. Write down the ordered pair for the following points:
   (a) A
   (b) B
   (c) C

2. Identify the ordered pair $(2, -4)$ on the axes above.

3. The cartesian plane divides the plane into four quadrants. The first quadrant is the upper right, where both the x and y coordinates are positive. On the cartesian plane above, identify the 2nd and 4th quadrants.

   Def: The *graph* of an equation in x and y, the the graph of all ordered pairs (a, b) in the coordinate plane that satisfy the given equation.

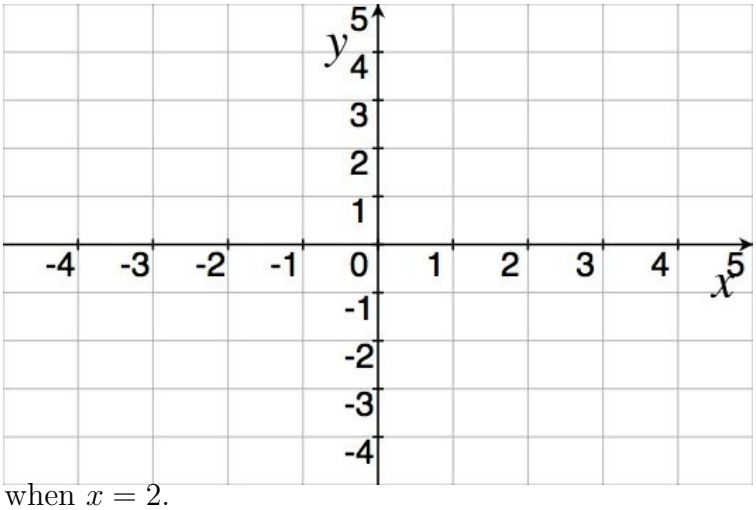
4. Consider the equation $x^2 = y$. Notice that $2^2 = 4$ and $(-4)^2 = 16$ so both $(2, 4)$ and $(-4, 16)$ are on the graph of $x^2 = y$. Plot three more points that are on the graph of the equation $x^2 = y$.



Functions

1. Let C be the piecewise defined function:

$$C(x) = \begin{cases} 3 + 2x & \text{if } -3 \leq x < 0 \\ x^2 & \text{if } 0 \leq x \leq 2 \end{cases}$$



   (a) Find $C(-2)$.

   (b) Find the output of the function C when $x = 2$.

   (c) Find the y intercept of C.

   (d) Is C a function? Why or why not.