# 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.

Write down the ordered pair for the following points:

1. A

2. B

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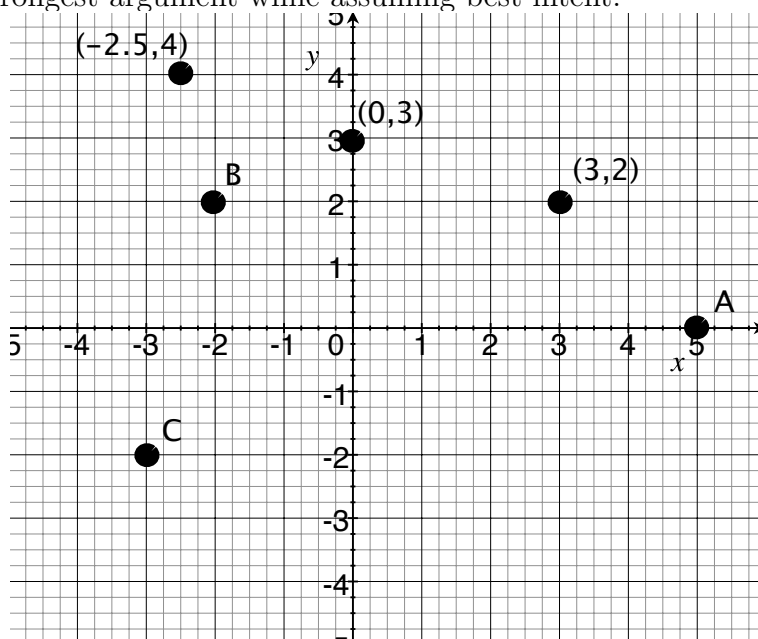
1. Identify the ordered pair $(2, -4)$ on the axes above.

2. 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 a function F is the set of ordered pairs (x, y) such that $y = F(x)$.

3. Consider the first function we saw in the first class defined in the following table:

x	$f(x)$
-4	16
-2	4
2	4

Most of the graph of f is graphed on the right. Look at the definition of a graph and finish graphing the function f.

1
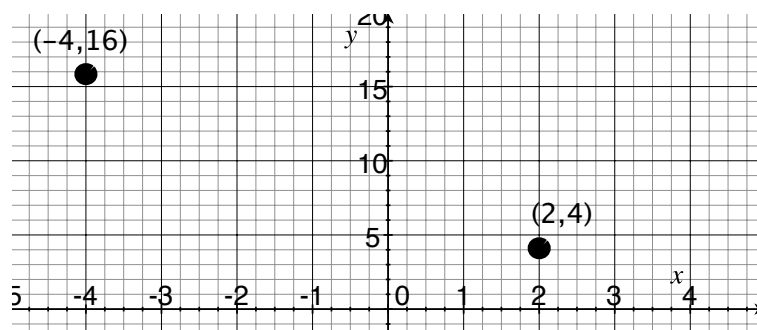
Get into groups of two to three and work on the following. Elect one person to write up your answers neatly and turn the worksheet in by next Tuesday. You may need to arrange a meeting outside of class, so consider exchanging contact information.

Vertical Line Test 0.1. *A curve in the coordinate plane is the graph of a function if and only if no vertical line intersects the curve more than once.*

4. The graph to the right is from the syllabus. Call it G.

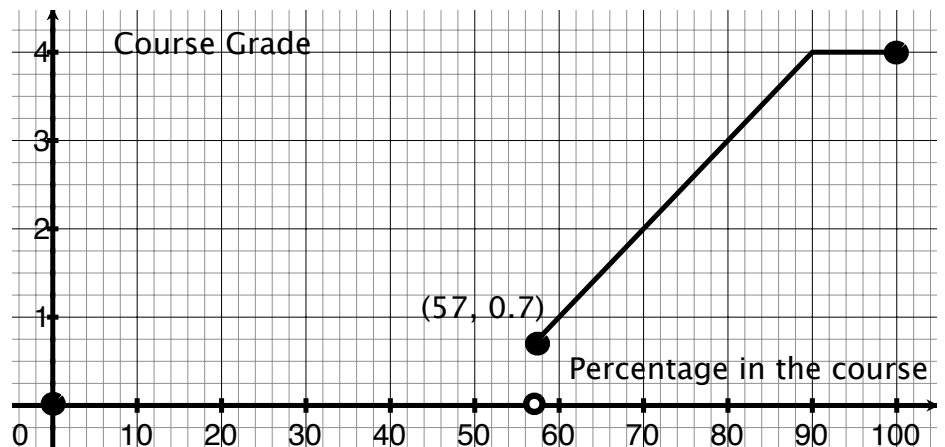   (a) Is G a function? Why or why not?

   (b) Find $G(70)$.

   (c) Find x such that $G(x) = 3.0$.

Course Grade

(57, 0.7)

Percentage in the course

   (d) What % do you need to earn a 4.0?

   (e) What is the domain of G?

   (f) What is the range of G?

5. In 1984 Reagan proposed a plan to change the US personal tax system. According to his plan, the income tax would be 15% on the first \$19,300 earned, 25% on the next \$18,800, and 35% on all the income beyond that. Graph the tax owed as a function of income.