Essential Question: How do we write the equation of a line?

Do Now:
On the same set of axes, graph the following 3 lines. Complete a – c.

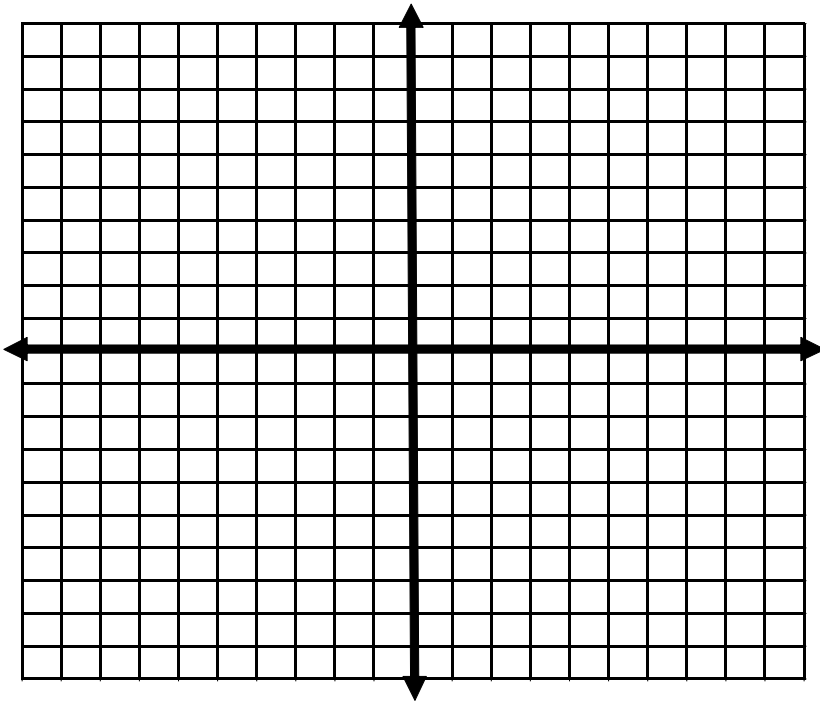y = 2x   y = 2x - 3   y = 2x + 4

Think about this…

a) **Compare and contrast the lines. What's the same? What's different?**

b) **Can a conclusion be made about the relationship of the lines and their slopes?**

c) **Graph y = – ½x on the coordinate plane above.**

Think about this…

- Do the lines intersect? In what way?

- What's the relationship between the slopes of the lines above and the slope of y = - ½x ?

Parallel Lines have the _____

_____.

Perpendicular lines have _____.

Writing the Equation of a Line

- _____

- _____

- _____

1. Write the equation of a line whose slope is -2 and y-intercept is 4.

2. Write the equation of a line that is parallel to $2x - y = 4$ and that has the same y-intercept as $y = x$.

3. Write the equation of a line that passes through the point (-4,3) and has a slope of 2.

4. Write the equation of a line that passes through (-2,4) and is perpendicular to the line $y - 2x = 4$.

5. Write the equation of a line that passes through the points (-3,1) and (0,-1).

6. Write the equation of a line with an x-intercept of 3 and a y-intercept of 2.

Writing the Equation of a Line in Slope-Intercept Form (y = mx + b)

Show all work on a separate sheet of paper.

1. Write the equation of a line that has a slope of -3 and a y-intercept of 4.

2. Write the equation of a line that passes through the points (-6, -3) and (-2, 1).

3. Write the equation of a line that passes through the points (-3, 4) and (3,-4).

4. Write the equation of a line that has an x-intercept of 6 and a y-intercept of -3.

5. Write the equation of a line that has an x-intercept of -4 and a y-intercept of -2.

6. Write the equation of a horizontal line that runs through the point (3, 5)

7. Write the equation of a line that is parallel to x − y = 4 and passes through the point (3, -2).

8. Write the equation of a line that is perpendicular to 2x − 4y = 16 and passes through the point (1, -6).