warm-up 15min.

21	Interpret the slope, y-intercept, and any other points of a linear function in context of a word problem

1) The table below shows my income from age 26 – 30. Use the data to answer the following questions.

Age	26	27	28	29	30
Income ($1000)	16.8	19.1	23.3	25.8	33.9

0 1 2 3 4

$y = 3.35x + 16.8$

x = yrs. after 26 y.o.

① Identify the independent variable and dependent variables.

independent = x age dependent = income

② Describe what the ordered pair (28, 23.3) means in the context of the data.

When you are 28 your income is 23 thousand 3 hundred

③ Use (27, 19.1) and (29, 25.8) to write a linear equation.

b

*20 $y = 3.35x - 71.35$

income starting at birth 23,300

④ What is the slope from your line? 3.35 What does your slope mean in the context of the problem?

every time you age, your income will be an extra $3,350

⑤ Using your equation, how much will I make when I'm 40 years old.

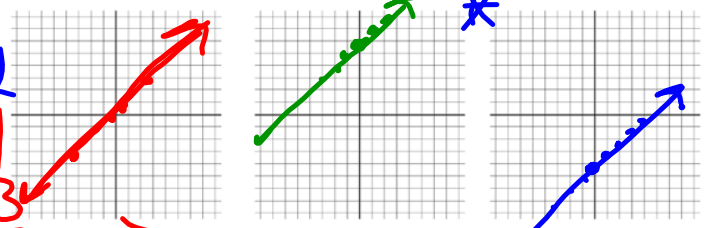
x

⑥ Using your equation, determine how old I'll be when I make $60,000.

The Picture Tells the Linear Story

Sketch each equation's graphs on the axes provided.
Answer the questions for each family of equations.

I.



x	y
1	1
3	3
-3	-3
0	0

1. How are the lines the same?

all graphs are increasing, all slopes are positive and = 1

2. What is different about the lines?

plotted in different places, different y intercepts

3. Where does each line cross the y-axis?

Line 1: (0,0)
Line 2: (0,6)
Line 3: (0,-4)

4. What happens to the graph when a constant is added to y = x?

number
add: line moves up
subtract: line moves down

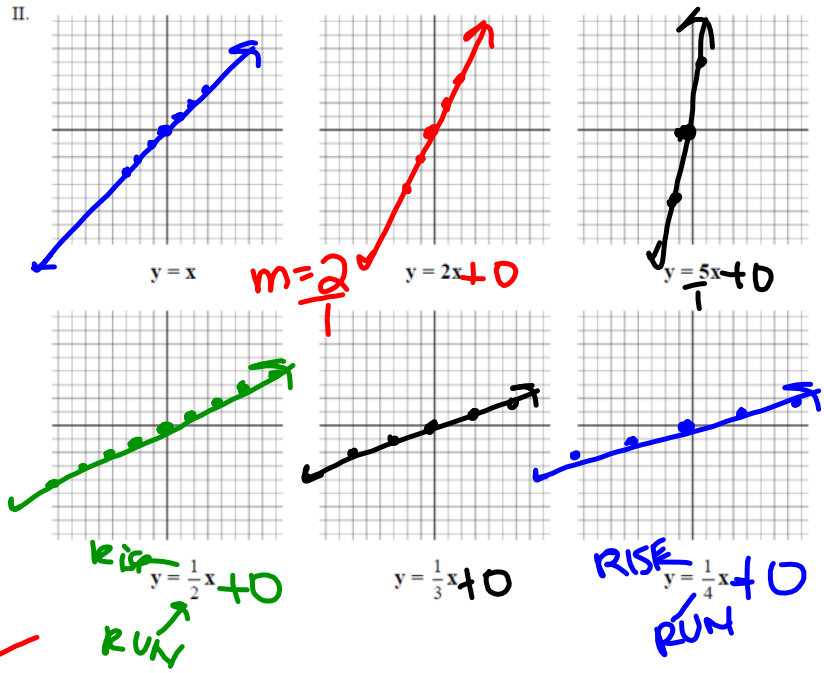
5. Write an equation for a line similar to those above but crosses the y-axis at 5.

$y = 1x + 5$

6. Write an equation for a line similar to those above but crosses the y-axis at –2

$y = x - 2$

II.



1. How are all the graphs alike? Why?

Same y-intercept

2. Describe the differences in the graphs.

different slopes, different steepness

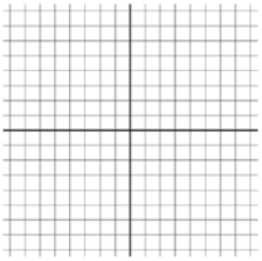
3. Which line appears the steepest?

line with biggest slope

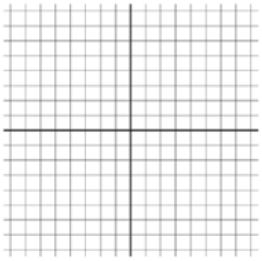
4. What makes the difference?

Small slope = less steep (flatter)
large slope = more steep

III.



$y = x$

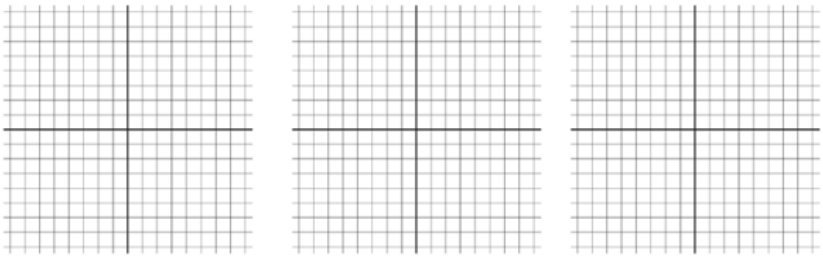


$y = -x$

1. How are the lines alike?

2. How are the lines different?

IV.



y = –x **y = –2x** **y = –4x**

1. Name 2 ways the lines are alike.

2. How are the lines different?

3. Which line appears the steepest?

4. What makes the difference?

Practice/Closure Day 4

V. Use the information from the previous graphs to answer the following questions.

1. Where does each of the following cross the y-axis?

   a. $y = 2x + 7$ _____

   b. $y = -x + 11$ _____

   c. $y = \frac{1}{2}x - 8$ _____

2. Which of the lines below is the steepest? Explain how you know.

   a. $y = 2x + 7$

   b. $y = -x + 11$

   c. $y = \frac{1}{2}x - 8$

3. Where does each of the following cross the y-axis?

   a. $y = x + 8$ _____

   b. $y = 3x - 4$ _____

   c. $y = \frac{1}{2}x + 3$ _____

4. Which of the lines below is the steepest? Explain how you know.

   a. $y = x + 8$

   b. $y = 3x - 4$

   c. $y = \frac{1}{2}x + 3$

5. Where does each of the following cross the y-axis?

   a. $y = -x + 8$ _____

   b. $y = -2x + 5$ _____

   c. $y = -\frac{1}{3}x$ _____

6. Which of the lines below is the steepest? Explain how you know.

   a. $y = -x + 8$

   b. $y = -2x + 5$

   c. $y = -\frac{1}{3}x$

7. If a linear equation can be written in the form $\mathbf{y = mx + b}$, where **m** and **b** represent any real values, explain the effect of **m** on the graph of the equation.

8. Explain the effect of **b** on the graph.