Math Modeling: **NAME: _____ PD.____**

LINEAR EQUATIONS REVISITED **DUE EXAM DAY!!!**

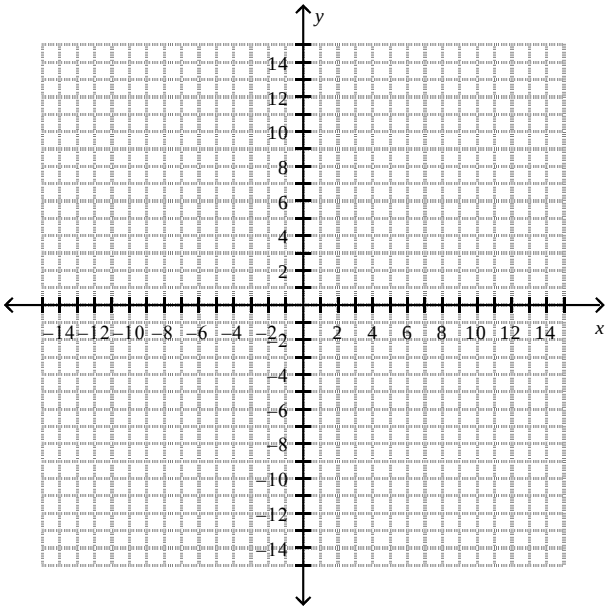
1.

A. {(1, 7), (–2, 1), (3, 13), (–4, –3), (0, 5)}
Using STAT PLOT on your calculator determine the equation for the line of best fit for both sets of data.

Line of best fit

_____

Graph this data on the graph below. Draw what you think is a line of best fit. Determine the slope. y – intercept. Using the slope intercept form, what is the equation of the line modeled by the data?



m=_____ y-intercept_____

***y = mx + b*: _____**

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B.

Hours	1	4	6	7	10
Miles	50	220	300	320	500

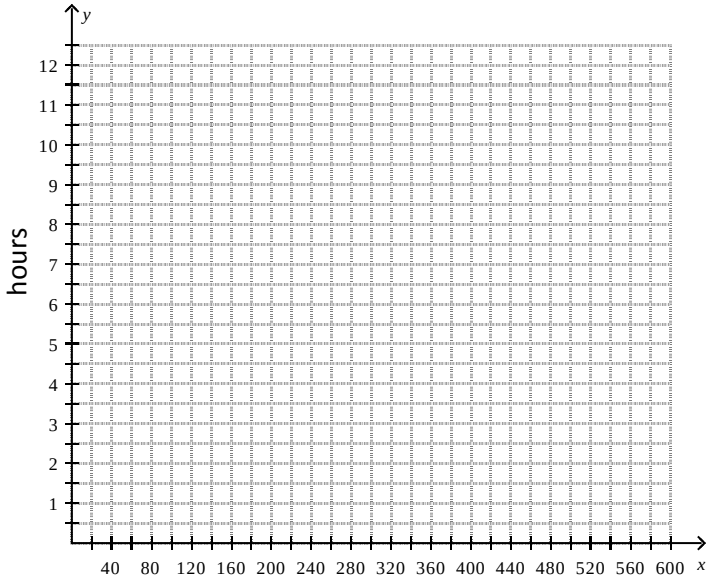
Using STAT PLOT on your calculator determine the equation for the line of best fit for both sets of data.

Line of best fit------

_____

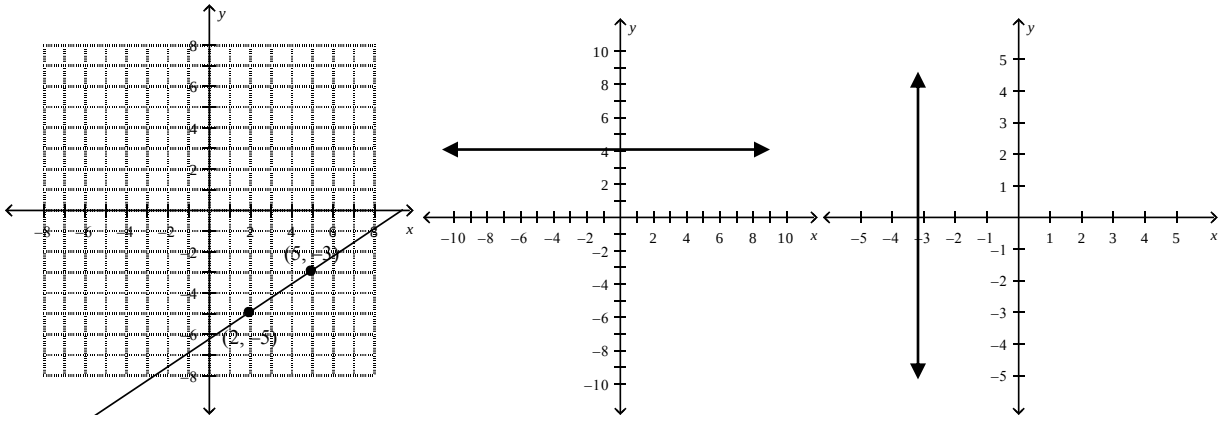
What does the slope of the line represent?

Graph this data on the graph below. Draw what you think is a line of best fit. Determine the slope. y – intercept. Using the slope intercept form, what is the equation of the line modeled by the data? NOTE THE UNITS!



miles

2. Find the slope of the line.



m= m= m=

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3. Find the slope of the line that contains $(1,\ 6)$ and $(10,\ -9)$.

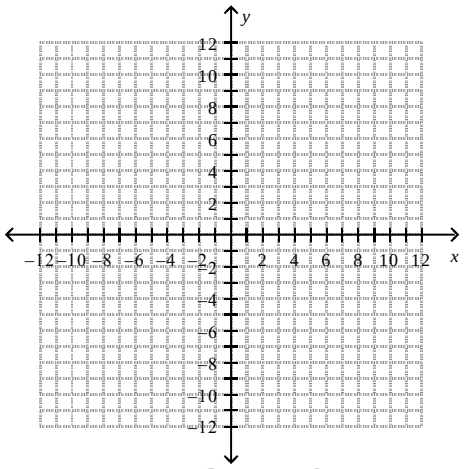
Find the slope of the line.

4. $y = -\frac{1}{2}x - 4$

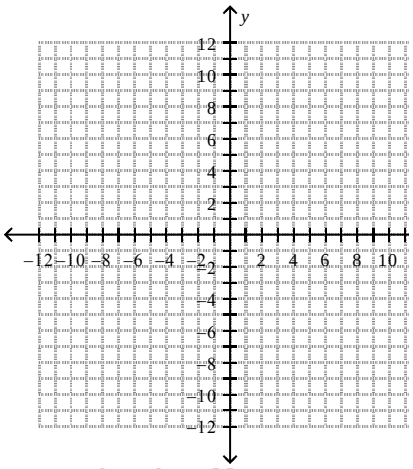
5. $3x + 5y = -15$

6.Graph the equations

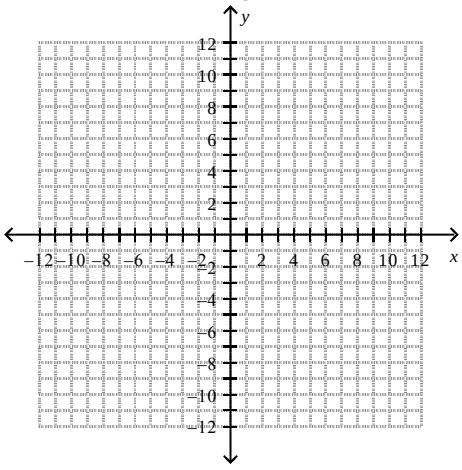
$y = -\frac{1}{4}x - 3$



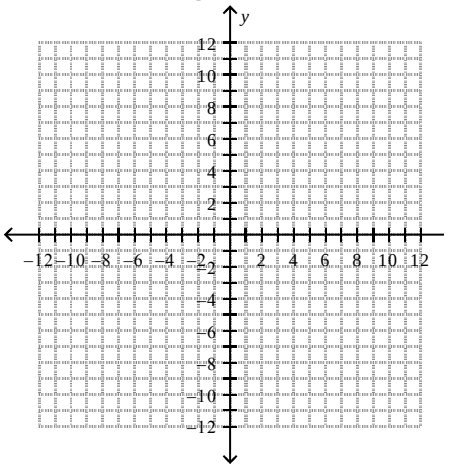
$x - 3y = -6$



$-3x - y = 6$



$6x + 6y = 30$



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Find an equation for the line:

7. through (2, 6) and perpendicular to $y = 2x + 5$

8. through (–4, 6) and parallel to $y = -3x + 4$.

9. through (–7, –4) and vertical.

Are these sets of data proportionate? If so determine the equation that models the data.

10.

x	*y*
6	24
18	72
54	216
162	648

11.

x	*y*
6	7.2
11	13.2
16	19.2
21	25.2

12. A student finds the slope of the line between (14, 1) and (18, 17). She writes $\frac{1-17}{18-14}$. What mistake did she make?

Find the slope and *y*-intercept of the line.

13. $y = \frac{4}{3}x - 3$

14. $14x + 4y = 24$

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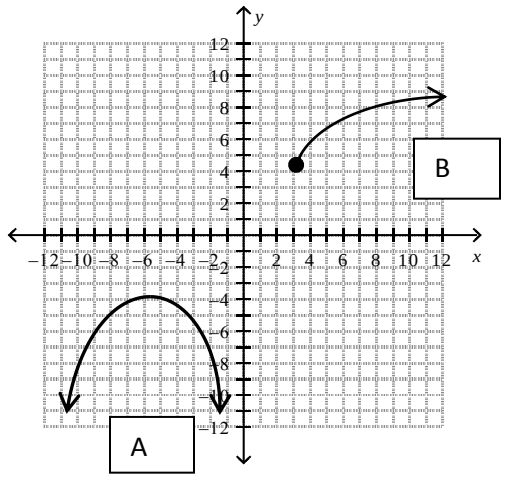
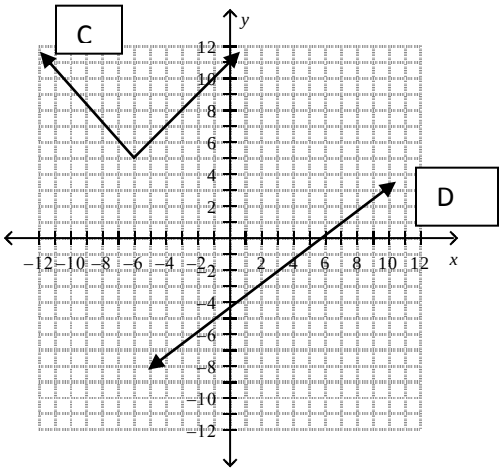
15. Identify the parent function for this graph:





A._____ **B.**_____ **C.**_____ **D.**_____

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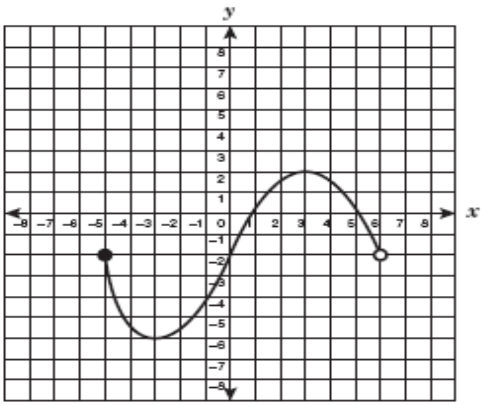
12 Mr. Maxwell asked his students to identify the domain represented by the function graphed below.



Which of the following student responses is correct?

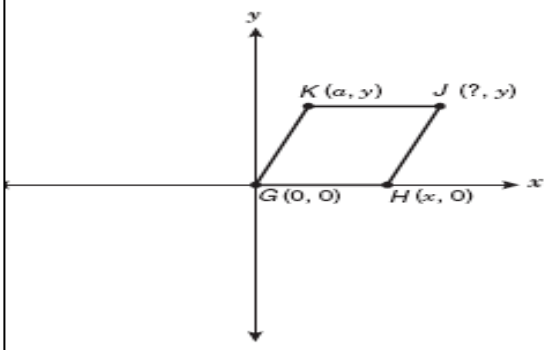
F $-5 \leq x < 6$

G $-6 \leq x \leq 2$

H $-5 \leq x < -2$

J Not here

Parallelogram $GHJK$ is shown below.



Which of the following represents the x-value of point J?

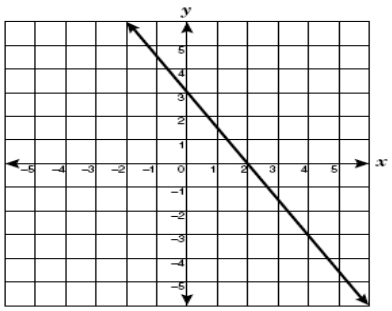
F $y - x$

G $x + y$

H $a + x$

J $x - a$

Which equation best represents the graph below?



F $y = 3 - \frac{3}{2}x$

G $y = 3 - \frac{2}{3}x$

H $y = 3 + \frac{2}{3}x$

J $y = 3 + \frac{3}{2}x$

Which equation describes a line that has a y-intercept of 5 and a slope of $\frac{1}{2}$?

F $y = 5 + \frac{1}{2}x$

G $y = (5 + x)\frac{1}{2}$

H $y = 5x + \frac{1}{2}$

J $y = (5x + 1)\frac{1}{2}$

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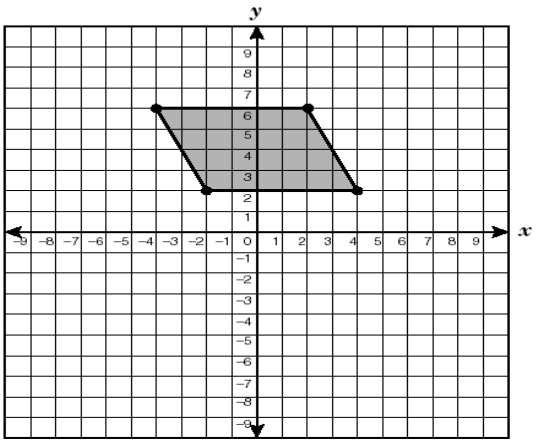
8 A shaded parallelogram is graphed on the coordinate grid below.



Which of the following functions describes a line that would include an edge of the shaded parallelogram?

F $y = -2x + 5$

G $y = -2x - 2$

H $y = -2x + 9$

J $y = -2x - 1$

What is the effect on the graph of the equation $6x + 3y = 12$ if 12 is changed to 36?

A The line is translated up 24 units.

B The line is translated up 8 units.

C The line is translated down 24 units.

D The line is translated down 8 units.

What is the rate of change of the function $y = -7$?

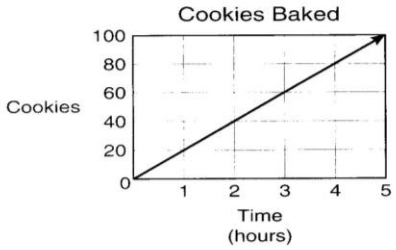
F 7

G −7

H 0

J Undefined

Mark and his friends are baking cookies for a bake sale. The graph below shows the total number of cookies they have compared to the number of hours they bake.



How would the graph change if Mark and his friends were given 20 cookies when they started baking?

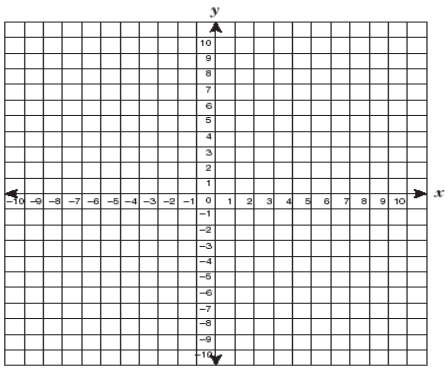
A The y-intercept would increase.

B The slope would increase.

C The y-intercept would decrease.

D The slope would decrease.

24 Which best describes the effect on the graph of $f(x) = 4x + 8$ if the y-intercept is changed to −3?



F The slope decreases.

G The new line passes through the origin.

H The x-intercept increases.

J The y-intercept increases.