NAME: KEY PER: _____

FINAL EXAM REVIEW: LINEAR FUNCTIONS

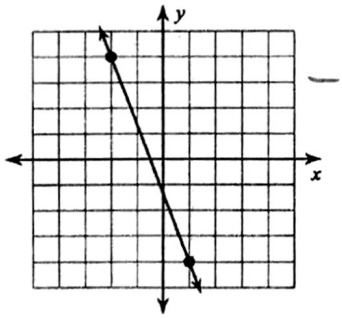
I. SLOPE

NOTES:

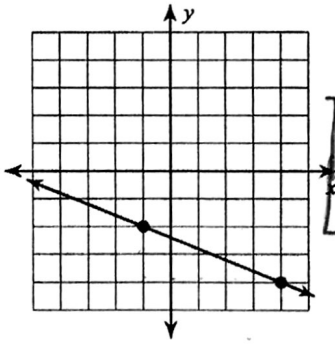
WRITE HOW YOU FIND SLOPE THE FOLLOWING 3-WAYS

TABLE	GRAPH	2-POINTS
$\frac{\Delta y}{\Delta x} = \frac{\text{change in "y"}}{\text{change in "x"}}$	$\frac{\text{RYSE}}{\text{RUN}}$ 	$\frac{y_2 - y_1}{x_2 - x_1}$

PRACTICE: FIND THE SLOPE

1) 

$-\frac{8}{3} = \boxed{\frac{-8}{3}}$

2) 

$\boxed{\frac{-2}{5}}$

3) $(-11, 19), (-20, 9)$

$\frac{9-19}{-20--11} = \frac{-10}{-9} = \boxed{\frac{10}{9}}$

4) $(-11, 16), (0, 2)$

$\frac{2-16}{0--11} = \boxed{\frac{-14}{11}}$

5)

x	0	2	4	6	8
y	10	6	2	-2	-4

+2

-4

$\frac{-4}{2} = \boxed{-2}$

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FINAL EXAM PREP:

What is the slope of the line that passes through the points M (-3, 5) and N (1, 8)?

F $\frac{3}{4}$

G $-\frac{4}{3}$

H $-\frac{3}{4}$

J $\frac{4}{3}$

What is the slope of the graph of the line that is represented by the equation below?

$$c = -6b + 8$$

$m = -6$

$b = 8$

What is the slope from the following table of values?

x	y
1	5
0	3
−1	1

F $-\frac{1}{2}$

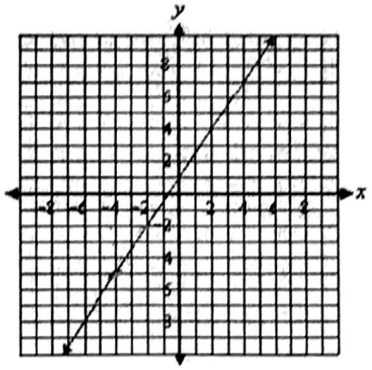
G 2

H $\frac{1}{2}$

J -2

$\frac{-2}{-1} = 2$

The graph below represents a linear function.



Which of the following best represents the slope of the line shown above?

F $-\frac{3}{2}$

G $-\frac{2}{3}$

H $\frac{2}{3}$

J $\frac{3}{2}$

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FINAL EXAM REVIEW: LINEAR FUNCTIONS

II. INTERCEPTS

NOTES:

WRITE HOW YOU FIND X & Y INTERCEPTS THE FOLLOWING 3-WAYS

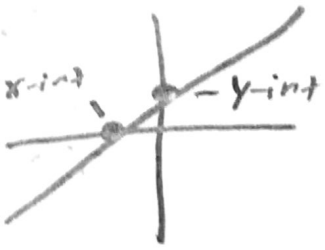
TABLE

y-int "x=0" →

x	y
0	4
4	0

x-int → "y=0"

GRAPH



SOLVING

x-int

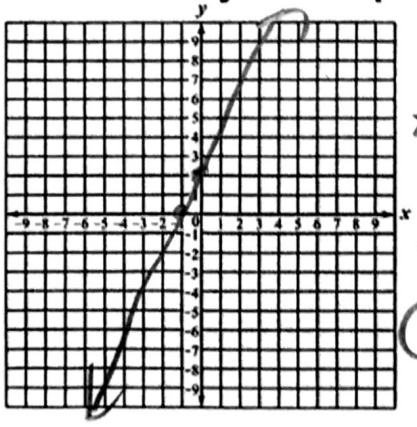
Set $y = 0$, solve for x.

y-int

Set $x = 0$, solve for y.

PRACTICE: FIND THE X & Y INTERCEPTS

1.) Find the x & y intercepts of y = 2x + 2



x-int (-1, 0)

y-int (0, 2)

2.)

X	Y
-3	18
0	12
3	6
6	0

y-int

x-int

3.)

Find x & y intercepts of

$5x - y = 5$

y-int

$5(0) - y = 5$

$y = -5$

x-int

$5x - 0 = 5$

$5x = 5$

$x = 1$

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FINAL EXAM PREP:

The table below shows pairs of values that satisfy a linear function.

x	y
-2	-11
-1	-4
0	3
1	10
2	17
3	24

+1 < > +7

What is the zero of the function?

F $-\frac{3}{7}$

G $\frac{3}{7}$

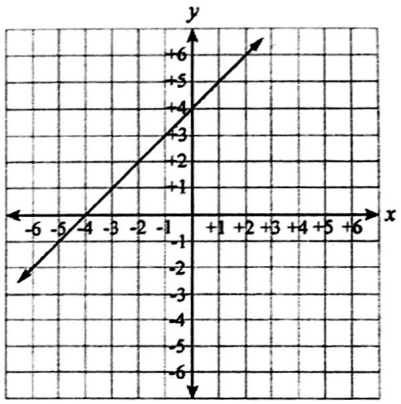
H 3

J 7

$y = 7x + 3$

$0 =$

A linear function is graphed on the coordinate plane below.



What is the zero of the function?

A −4

B 0

C 1

D 4

Damien graphed the following linear function on an (x,y) coordinate plane

$f(x) = 6x + 12.6$

What is the x-intercept of the graph of this function?

A −6.6

B −2.1

C 6

D 12.6

$0 = 6x + 12.6$

$\frac{-12.6}{6} = \frac{6x}{6}$ $x = -2.1$

Cynthia graphed the following linear function on an (x,y) coordinate plane.

$f(x) = -8x - 5$

What is the x-intercept of the graph of this function?

F −8

G −5

H −3

J $-\frac{5}{8}$

$0 = -8x - 5$

$+5 \quad +5$

$\frac{5}{-8} = \frac{-8x}{-8}$ $x = \frac{-5}{8}$

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FINAL EXAM REVIEW: LINEAR FUNCTIONS

III. LINEAR EQUATIONS

NOTES:

WRITE WHAT YOU KNOW ABOUT THE FOLLOWING

SLOPE INTERCEPT	STANDARD FORM	POINT-SLOPE
$y = mx + b$	$Ax + By = C$	$y - y_1 = m(x - x_1)$

PRACTICE:

Write the slope-intercept form of the equation of each line.

1) $2x + 5y = 30$

$y = \frac{-2}{5}x + 6$

2) $4x - 3y = -15$

$y = \frac{4}{3}x + 5$

3) $m = -5$: $(-1, 3)$

$y - 3 = -5(x + 1)$

$y - 3 = -5x - 5$

$y = -5x - 2$

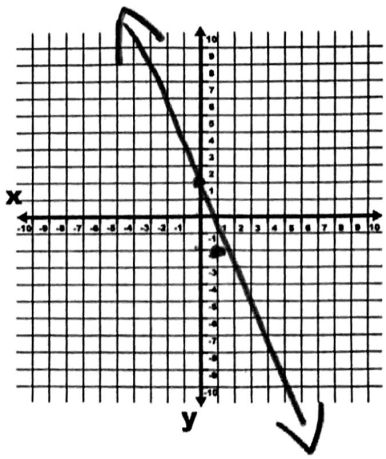
4. $y - 7 = -\frac{1}{2}(x + 8)$

$y - 7 = -\frac{1}{2}x - 4$

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

Graph the line given the equation

y = -4x + 2



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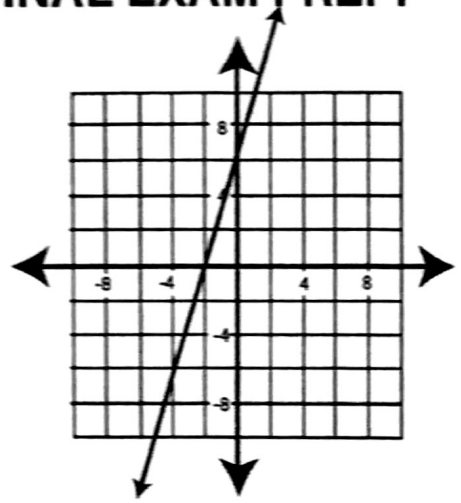
FINAL EXAM PREP:



Which of the following equations best represents the line shown above?

A $y = \frac{1}{3}x - 2$

B $y = 3x - 2$

C $y = \frac{1}{3}x + 6$

D $y = 3x + 6$

The table below shows a relationship between x and y.

x	y
-2	-5
0	1
2	7
4	13

Which of the following equations best represents this relationship?

F $y = -2x - 5$

G $y = 3x - 1$

H $y = x + 1$

J $y = 3x + 1$

The graph of which of the following equations is parallel to the graph of $y = 3x - 4$?

A $y = 3x + 4$

B $y = -3x + 4$

C $y = 4x - 3$

D $y = 3$

The ordered pairs listed below are points on a line.

(1, 5), (3, 11), (5, 17)

Which of the following equations best describes the line containing all three points?

A $y = 6x - 1$

B $y = 3x + 2$

C $y = -5x + 10$

D $y = -2x + 7$

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FINAL EXAM REVIEW: LINEAR FUNCTIONS

IV. LINEAR TRANSFORMATIONS

NOTES:

WRITE WHAT YOU KNOW ABOUT THE FOLLOWING

$$a\,f(\,bx \pm h) \pm k$$

Stretch/ Compress | Left (+) Right (−) | up + | down −

HOW CAN YOU ***TRANSFORM*** (CHANGE) A LINE?

Slope: steep / less steep y-int: up/down

PRACTICE:

Identify the given transformation

1. $f(x - 9)$

Right Nine

2. $f(x) - 10$

Down 10

3. $2f(x)$

Vertical Stretch

4. $f(3x)$

Horiz. Compress

5. $-3f(x - 7)$

Reflect

Vertical Stretch

Right 7

6. $f(x + 8) + 1$

Up 1

Left 8

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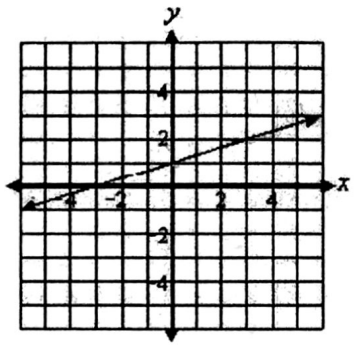
FINAL EXAM PREP:

A linear function is graphed below.



What is the equation of this line when it is translated 4 units down?

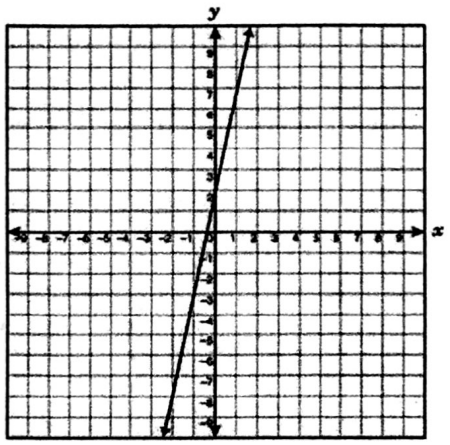
F $y = \frac{1}{3}x - 3$

G $y = 3x-3$

H $y = \frac{1}{3}x + 1$

J $y = 3x+1$

The graph of the function $y = 5x + 2$ is shown below.



Which of these following represents the line translated 3 units down?

A $y = 2x - 3$

B $y = 2x + 2$

C $y = 5x - 3$

D $y = 5x - 1$

If the graph of the parent function $f(x) = x$ is shifted 7 units down, which of the following equations would the new graphed line represent?

A $f(x) = 7x$

B $f(x) = x - 7$

C $f(x) = x + 7$

D $f(x) = 7x - 7$

Two functions are given below.

$$p(x) = \frac{5}{8}x - \frac{3}{11}$$
$$q(x) = \frac{8}{5}x - \frac{3}{11}$$

How does the graph of p compare with the graph of q?

A The graph of p has a different y-intercept than the graph of q.

B The graph of p is less steep than the graph of q.

C The graph of p is steeper than the graph of q.

D The graph of p is parallel to the graph of q.