To Guthrie Junior High Students, Parents, & Guardians,

The 8th grade, Pre-Algebra, curriculum is established by the Oklahoma Academic Standards for Mathematics. Each Proficiency Scale and every activity and assessment we completed this school year can be found as a portion of one or more of the standards. In our planning of the course work for the school year, we organized our time to teach, practice and assess each of those standards in the first three quarter. This leaves the fourth nine-week period for an overall review of the standards.

Therefore, all 8th grade students received instruction required by the State prior to our break. The packet to follow is a basic review of each substandard. Each daily activity is labeled by date and substandard being reviewed. Students will be familiar with the concepts but may need to use the notes attached to the daily activity with the answers for assistance. There is also an 8th Grade Mathematics Formula Sheet that will be a valuable resource throughout. Students are encouraged to continue using the technology of a scientific calculator as we practiced using in our class work.

The following websites are appropriate for aiding in review if needed. Some of these may have been used in FLEX or extra assistance throughout the year. They are not essential to the success but may be helpful.

Quality Free Online Learning Videos

https://mashupmath.com

https://www.mathantics.com

http://mathvids.com

https://www.khanacademy.org

https://www.pbslearningmedia.org

eHowEducation (via youtube)

Dylan Peters EDU (creative videos via youtube)

CrashCourse (via youtube type in math in the search menu)

GJHS 8th grade Mathematic Teachers

Adam Dement, Kristin Hooper, Shurlyn Maltz, & Audrey Rose

To be used when needed on all activities.

Oklahoma State Testing Program
8th Grade Mathematics Formula Sheet

UNIT CONVERSIONS

1 foot = 12 inches

1 yard = 3 feet

1 mile = 5280 feet

1 mile = 1760 yards

1 meter = 100 centimeters

1 meter = 1000 millimeters

1 pound = 16 ounces

1 ton = 2000 pounds

1 kilogram = 1000 grams

1 cup = 8 fluid ounces

1 pint = 2 cups

1 quart = 2 pints

1 gallon = 4 quarts

AREA

Square	$A = s^2$	Parallelogram	$A = bh$
Rectangle	$A = lw$	Circle	$A = \pi r^2$
Triangle	$A = \frac{1}{2}bh$	Trapezoid	$A = \frac{1}{2}(b_1 + b_2)h$

CIRCUMFERENCE

Circle $C = \pi d$ or $C = 2\pi r$

VOLUME

Rectangular Prism $V = Bh$ or $V = lwh$

Right Cylinder $V = Bh$ or $V = \pi r^2 h$

SURFACE AREA

Rectangular Prism $S = 2B + Ph$ or $S = 2lw + 2lh + 2wh$

Cylinder $S = 2\pi rh + 2\pi r^2$

LINEAR EQUATIONS

Slope-intercept $y = mx + b$

Direct Variation $y = kx$

Slope formula $m = \frac{y_2 - y_1}{x_2 - x_1}$

OTHER

$d = rt$

Pythagorean Theorem $a^2 + b^2 = c^2$

OKLAHOMA STATE DEPARTMENT OF EDUCATION
CHAMPION EXCELLENCE

April 13th

NAME_____

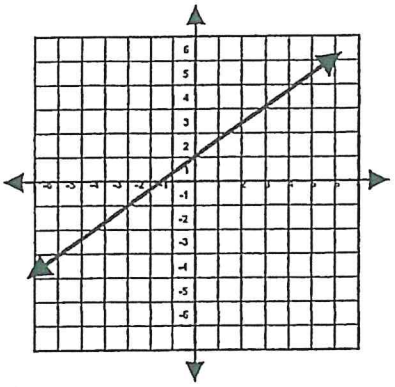
PA.A.2.1 and 2.2

(1)

x	2	4	6	8	10
y	25	35	45	55	65

This table represents points that belong to a given line. What is the equation of the line that passes through the points on the table?

F $y = 5x + 15$
G $y = 10x$
H $y = 10x + 5$
J $y = 5x + 65$



(2) Which of the following is the slope of the line graphed above?

A -2

B $\frac{3}{2}$

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

D $\frac{2}{3}$

x	y
0	2
- 3	0
-6	-2

(3) **Using the table above, what is the slope of the line which passes through the points listed?**

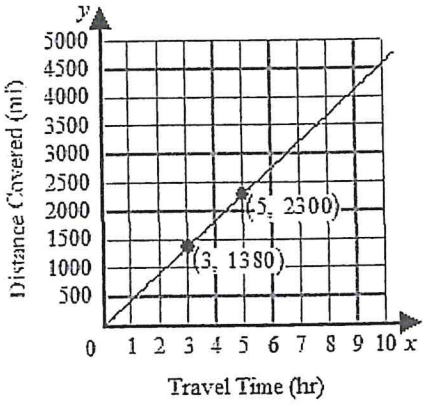
A -2

B $\frac{2}{3}$

C 2

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

(4) The graph shows the hours a plane has been flying and the distance covered. If flying at a constant rate, what is the airplane's speed?



A. 230 mph

B. 460 mph

C. 450 mph

D. 368 mph

April 13th

NAME Key

PA.A.2.1 and 2.2

Or plug points into each equation to see which is a solution.

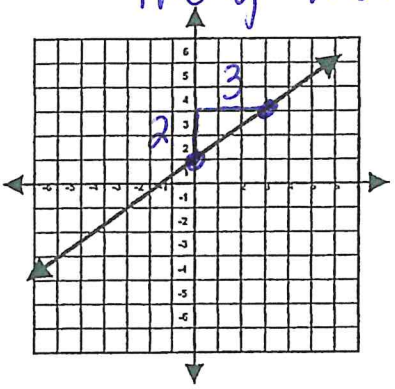
(1)

	x	2	4	6	8	10
15	y	25	35	45	55	65

This table represents points that belong to a given line. What is the equation of the line that passes through the points on the table?

F $y = 5x + 15$
G $y = 10x$
H $y = 10x + 5$
J $y = 5x + 65$

- identify the slope $\frac{\Delta y}{\Delta x} = \frac{10}{2} = 5$
- go backwards using the slope to get to when $x = 0$ because the y-value will represent the y-intercept.



(2) Which of the following is the slope of the line graphed above?

~~A~~ -2

B $\frac{3}{2}$

~~C~~ $-\frac{2}{3}$

D $\frac{2}{3}$

- Remember positive slopes go up to the right
- count between any two points on the line - $\frac{\text{rise}}{\text{run}}$

x	y
0	2
-3	0
-6	-2

-3 -3 -2 -2

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

(3) **Using the table above, what is the slope of the line which passes through the points listed?**

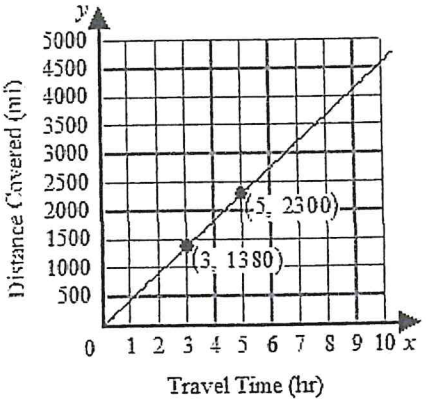
A -2

B $\frac{2}{3}$

C 2

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

(4) The graph shows the hours a plane has been flying and the distance covered. If flying at a constant rate, what is the airplane's speed?



$\frac{y_2 - y_1}{x_2 - x_1} = \frac{2300 - 1380}{5 - 3} = \frac{920}{2}$

$(3, 1380)$ $(5, 2300)$

x_1, y_1 x_2, y_2

A. 230 mph

B. 460 mph

C. 450 mph

D. 368 mph

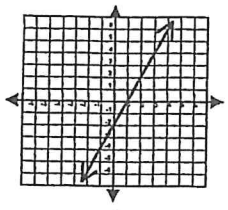
April 14th

NAME_____

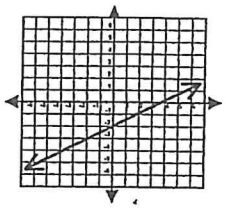
PA.A.2.3

(1) Which graph represents a line with a slope of $\frac{1}{2}$?

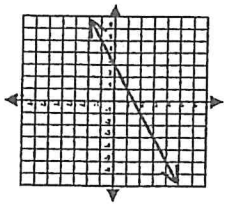
A



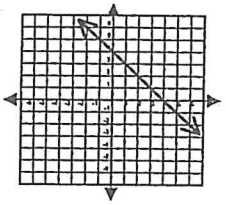
B

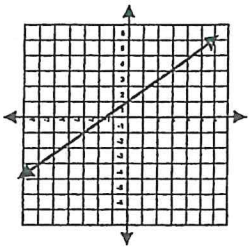


C



D





(2) Which of the following is the slope of the line graphed above?

A -2

B $\frac{3}{2}$

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

D $\frac{2}{3}$

(3) A line passes through the points (3 , 4) and (-2 , 5). What is the slope of the line?

A 5

B 3

C $-\frac{1}{3}$

D $-\frac{1}{5}$

(4) What is the slope of the line that passes through the points (3, 6) and (−1, −2)?

A 2

B $\frac{1}{2}$

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

D −2

Find the slope of the line which passes through the given points.

(5) (−2,1);(−1,−2)

(6) (−1,3);(2,4)

(7) (7,−1);(2,3)

(8) (5,−8);(−3,3)

(9) Which table demonstrates a proportional relationship between x and y?

A.

x	5	7	9	11
y	16	18	20	22

B.

x	5	7	9	11
y	30	49	72	99

C.

x	5	7	9	11
y	35	49	63	77

(10) Which table demonstrates a proportional relationship between x and y?

A.

x	2	5	8	11
y	16	40	64	88

B.

x	2	5	8	11
y	14	40	72	110

C.

x	2	5	8	11
y	2	10	24	44

(11) Which table demonstrates a proportional relationship between x and y?

A.

x	3	6	9	12
y	3	12	27	48

B.

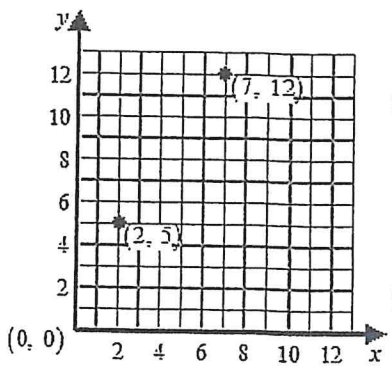
x	3	6	9	12
y	27	54	81	108

C.

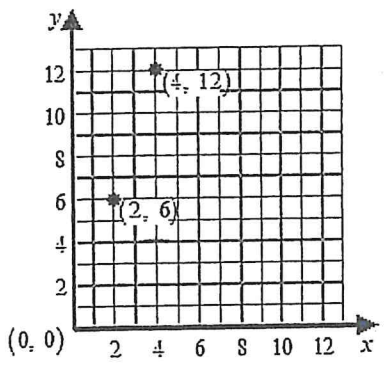
x	3	6	9	12
y	24	54	90	132

(12) Which graph demonstrates a proportional relationship between x and y?

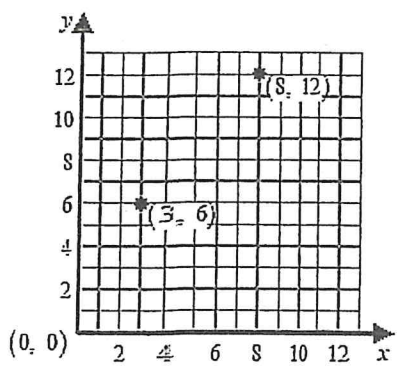
A.



B.



C.



April 14th

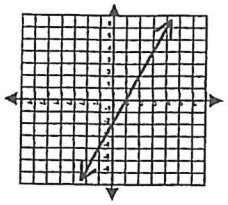
NAME KEY

PA.A.2.3

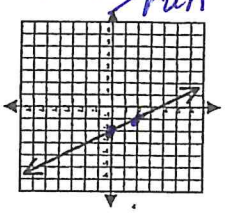
(1) Which graph represents a line with a slope of $\frac{1}{2}$?

- up to the right
- rise/run = up 1 over 2

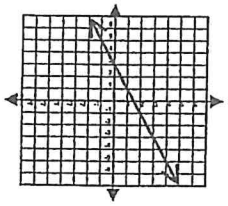
A



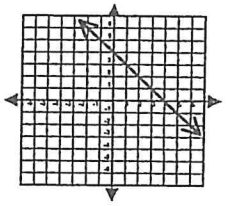
B

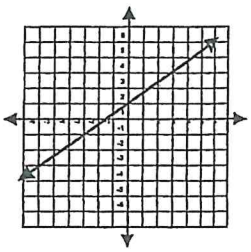


C



D





rise / run

(2) Which of the following is the slope of the line graphed above?

A -2

B $\frac{3}{2}$

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

D $\frac{2}{3}$

(3) A line passes through the points (3 , 4) and (-2 , 5). What is the slope of the line?

$x_1\ y_1 \quad x_2\ y_2$

$$\frac{y_2-y_1}{x_2-x_1} = \frac{5-4}{-2-3} = \frac{1}{-5}$$

A 5

B 3

C $-\frac{1}{3}$

D $-\frac{1}{5}$

(4) What is the slope of the line that passes through the points (3, 6) and (–1, –2)?

$x_1\ y_1 \quad x_2\ y_2$

$$\frac{-2-6}{-1-3} = \frac{-8}{-4} = 2$$

A 2

B $\frac{1}{2}$

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

D –2

Find the slope of the line which passes through the given points.

$\frac{y_2-y_1}{x_2-x_1}$

(5) (–2,1);(–1,–2)

$$\frac{-2-1}{-1--2} = -3$$

(6) (–1,3);(2,4)

$$\frac{4-3}{2--1} = \frac{1}{3}$$

(7) (7,–1);(2,3)

$$\frac{3--1}{2-7} = -\frac{4}{5}$$

(8) (5,–8);(–3,3)

$$\frac{3--8}{-3-5} = -\frac{11}{8}$$

(9) Which table demonstrates a proportional relationship between x and y?

A.

x	5	7	9	11
y	16	18	20	22

B.

x	5	7	9	11
y	30	49	72	99

(C.)

x	5	7	9	11
y	35	49	63	77

$\frac{35}{5} = \frac{49}{7} = \frac{63}{9} = \frac{77}{11} =$ (7)

proportional relationships
- demonstrate equivalent ratios (constant of proportionality)
- are linear (straight)
- go through (0,0) on the coordinate plane.

(10) Which table demonstrates a proportional relationship between x and y?

(A.)

x	2	5	8	11
y	16	40	64	88

$\frac{16}{2} = \frac{40}{5} = \frac{64}{8} = \frac{88}{11}$

B.

x	2	5	8	11
y	14	40	72	110

C.

x	2	5	8	11
y	2	10	24	44

(11) Which table demonstrates a proportional relationship between x and y?

~~A.~~

x	3	6	9	12
y	3	12	27	48

$\frac{3}{3} \neq \frac{12}{6} \neq \frac{27}{9} \neq \frac{48}{12}$

(B.)

x	3	6	9	12
y	27	54	81	108

$\frac{27}{3} = \frac{54}{6} = \frac{81}{9} = \frac{108}{12}$

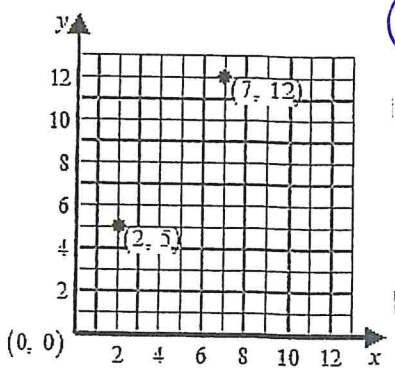
C.

x	3	6	9	12
y	24	54	90	132

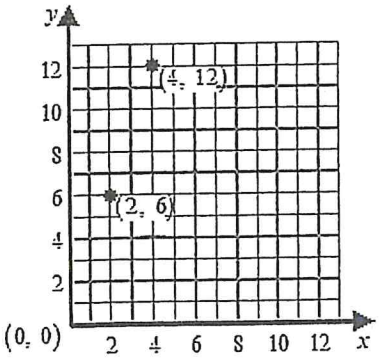
(12) Which graph demonstrates a proportional relationship between x and y?

which one goes through (0,0)? because they are all linear.

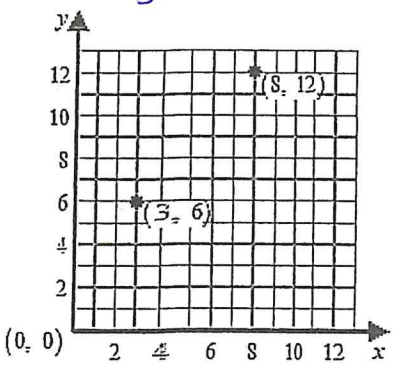
A.



(B.)



C.



April 15th

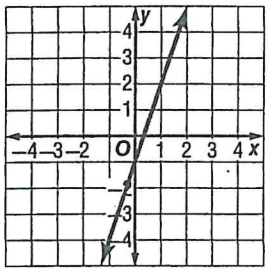
Name Date

Practice by Objective

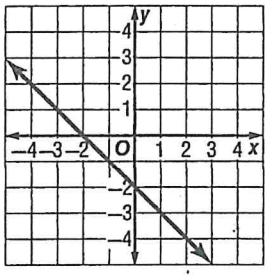
8.1.1.c PA: A.2.4 and 2.5

1 **If the slope of $y = 3x - 2$ is changed to -1, which graph represents the new equation?**

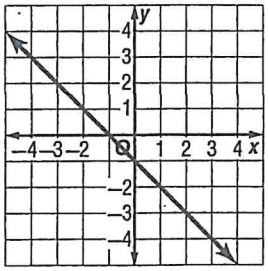
A



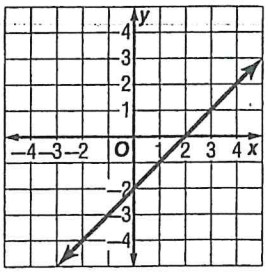
B



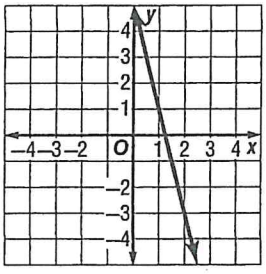
C



D



2 **The coordinate plane below shows the graph of the equation $y = -4x + 5$.**



Which statement shows the effect of changing the slope of the line $y = -4x + 5$ to 0?

A The new line will intersect the x-axis at (5, 0) and be parallel to the y-axis.

B The new line will intersect the y-axis at (0, 0) and be parallel to the x-axis.

C The new line will intersect the x-axis at (0, 0) and be parallel to the y-axis.

D The new line will intersect the y-axis at (0, 5) and be parallel to the x-axis.

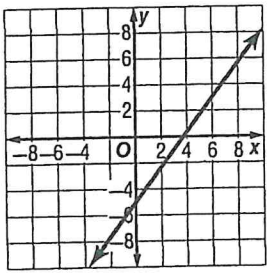
Name Date

Practice by Objective

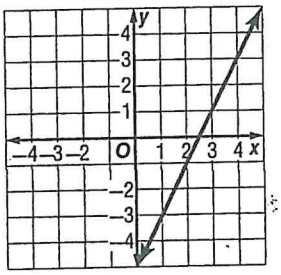
8.1.1.c (continued)

3 Which graph shows the effect of changing the y-intercept in the equation $y = \frac{4}{3}x - 5$ to 2?

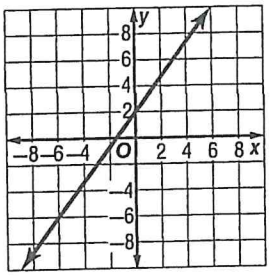
A



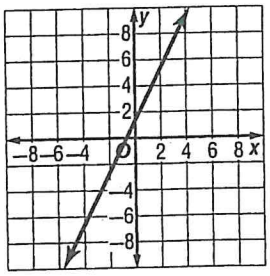
B



C

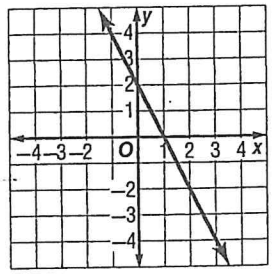


D

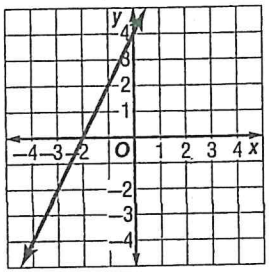


4 Which graph represents the equation $y = -2x + 4$ if the y-intercept is changed to 2?

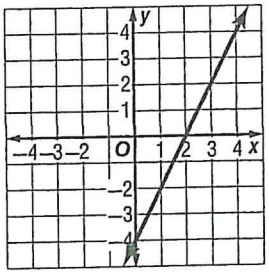
A



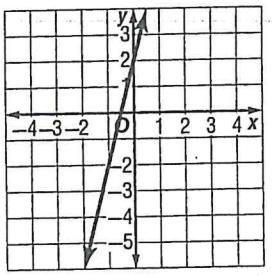
B



C



D



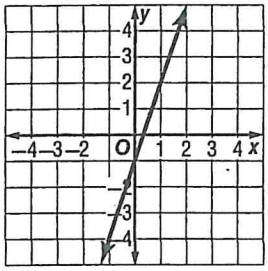
April 15th

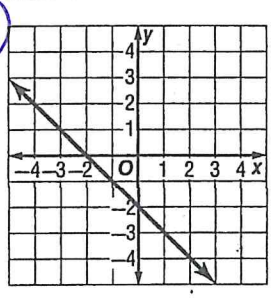
Name KEY Date

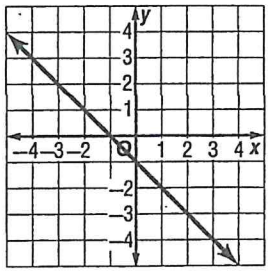
Practice by Objective

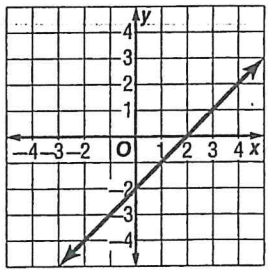
8.1.1.c PA.A.2.4 and 2.5

1 If the slope of $y = 3x - 2$ is changed to -1, which graph represents the new equation?

A 

B 

C 

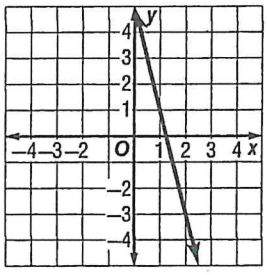
D 

changes direction

new equation:

$y = -1x - 2$

2 The coordinate plane below shows the graph of the equation $y = -4x + 5$.



Which statement shows the effect of changing the slope of the line $y = -4x + 5$ to 0?

A The new line will intersect the x-axis at (5, 0) and be parallel to the y-axis.

B The new line will intersect the y-axis at (0, 0) and be parallel to the x-axis.

C The new line will intersect the x-axis at (0, 0) and be parallel to the y-axis.

D The new line will intersect the y-axis at (0, 5) and be parallel to the x-axis.

therefore the new equation would be

$y = 0x + 5$

or

$y = 5$ - this must intersect the y-axis at 5. (horizontal line)

changing the slope affects:

- direction
- $\frac{\text{rise}}{\text{run}}$ = steepness
- like a teeter-totter

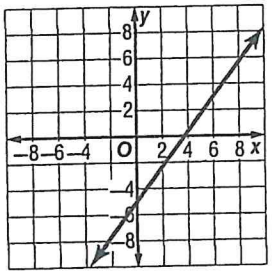
Name Date

Practice by Objective

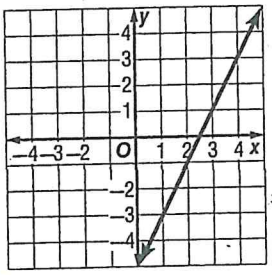
8.1.1.c (continued)

3 Which graph shows the effect of changing the *y*-intercept in the equation $y = \frac{4}{3}x - 5$ to 2?

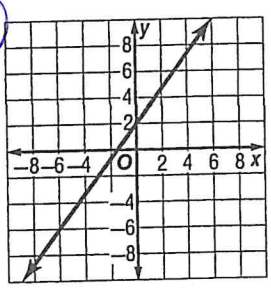
A



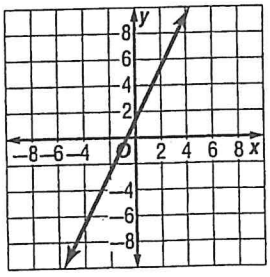
B



C



D



new equation:

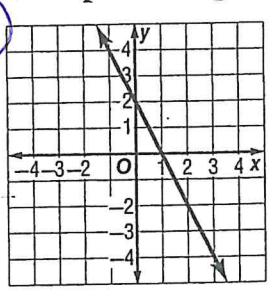
$y = \frac{4}{3}x + 2$

$m = \frac{4}{3}$

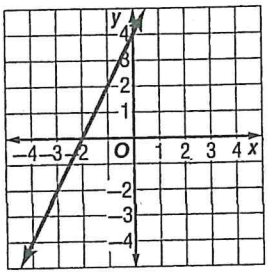
$b = 2$

4 Which graph represents the equation $y = -2x + 4$ if the *y*-intercept is changed to 2?

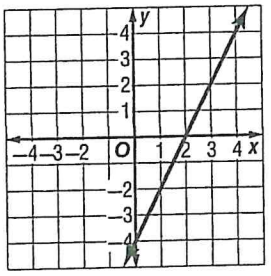
A



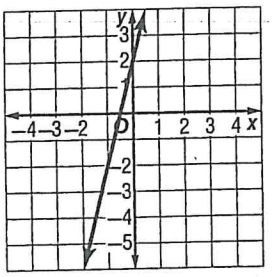
B



C



D



new equation:

$y = -2x + 2$

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

$b = 2$

y-intercept changes

- where the line crosses the y-axis
- like an elevator

April 15th

NAME_____

PA.A.2.4

1

What happens to the *y*-intercept of $y = x$ when the function changes to $y = x + 4$?

A The *y*-intercept does not change.

B The *y*-intercept changes from 0 to 4.

C The *y*-intercept changes from 0 to -4.

D The *y*-intercept becomes equal to the *x*-intercept.

2 **Which of the following statements describes the change that is occurring in the y-intercept of the graph of $y = x$ when it changes to $y = x - 7$?**

A The y-intercept changes from -7 to 0.

B The y-intercept changes from 0 to -7.

C The y-intercept changes from 0 to 7.

D The y-intercept does not change.

3 **What happens to the slope and *y*-intercept of $y = x$ when the equation changes to $y = 2x - 6$?**

A The slope changes to 2, and the *y*-intercept changes to 6.

B The slope changes to -6, and the *y*-intercept changes to 2.

C The slope changes to 2, and the *y*-intercept changes to -6.

D The slope changes to -6, and the *y*-intercept changes to -2.

slope-intercept form

$y = mx + b$ ← y-intercept

slope

April 15th

NAME Key

PA.A.2.4

1. **What happens to the y-intercept of $y = x$ when the function changes to $y = x + 4$?**

   A The y-intercept does not change.

   B The y-intercept changes from 0 to 4.

   C The y-intercept changes from 0 to −4.

   D The y-intercept becomes equal to the x-intercept.

   moves up 4 units (y-intercept changes)

2. **Which of the following statements describes the change that is occurring in the y-intercept of the graph of $y = x$ when it changes to $y = x - 7$?**

   A The y-intercept changes from -7 to 0.

   B The y-intercept changes from 0 to -7.

   C The y-intercept changes from 0 to 7.

   D The y-intercept does not change.

3. **What happens to the slope and y-intercept of $y = x$ when the equation changes to $y = 2x - 6$?**

   A The slope changes to 2, and the y-intercept changes to 6.

   B The slope changes to −6, and the y-intercept changes to 2.

   C The slope changes to 2, and the y-intercept changes to −6.

   D The slope changes to −6, and the y-intercept changes to −2.

April 16th

NAME_____

PA.A.3.1 & 3.2

1. Evaluate: $\frac{x}{2}+2$ if $x=-8$ [A] -2 [B] -6 [C] -3 [D] 6

2. Evaluate: $-3x+7x$ if $x=2$ [A] -8 [B] 8 [C] -20 [D] 1

3. **Which equation demonstrates the associative property of addition?**

   A $2 + x = x + 2$

   B $5 + 0 = 5$

   C $(3 + (-2)) + 6 = 3 + (-2 + 6)$

   D $5(x - 9) = 5x - 45$

4. **Which property does the following equation represent?**

   $2 \cdot (3 - 2y) = 6 - 4y$

   A associative

   B commutative

   C distributive

   D identity

April 16th

NAME KEY

PA.A.3.1 & 3.2

substitute in the value of x

(1) Evaluate: $\frac{x}{2}+2$ if $x=-8$ [A] -2 [B] -6 [C] -3 [D] 6

$\frac{-8}{2}+2 = -4+2 = -2$

(2) Evaluate: $-3x+7x$ if $x=2$ [A] -8 [B] 8 [C] -20 [D] 1

$-3(2)+7(2)$

(3) **Which equation demonstrates the associative property of addition?**

A $2 + x = x + 2$ commutative property

B $5 + 0 = 5$ additive identity

C $(3 + (-2)) + 6 = 3 + (-2 + 6)$

D $5(x - 9) = 5x - 45$ distributive property

(4) **Which property does the following equation represent?**

$2 \cdot (3 - 2y) = 6 - 4y$

A associative

B commutative

C distributive

D identity

Distributive Property

$a(b+c) = ab + ac$ or $4(x-2) = 4x-8$

Associative Property

$a+(b+c) = (a+b)+c$ or $2+(3+4) = (2+3)+4$

Commutative Property

$a+b = b+a$ or $2+3 = 3+2$

April 16th

NAME_____

PA.A.4.1

Solve:

(1) $-9x+9+11x=-4$ [A] $x=\frac{5}{2}$ [B] $x=-\frac{13}{2}$ [C] $x=-\frac{5}{2}$ [D] $x=\frac{13}{2}$

(2) $3x=2x+4$ [A] $x=4$ [B] $x=\frac{4}{5}$ [C] $x=-4$ [D] $x=-\frac{4}{5}$

(3) $-8x+11+10x+15=4$ [A] $x=11$ [B] $x=15$ [C] $x=-15$ [D] $x=-11$

(4) $6x-9=5x-3$ [A] $x=6$ [B] $x=-\frac{12}{11}$ [C] $x=1$ [D] $x=-6$

April 16th

NAME KEY

PA.A.4.1

Solve:

① $-9x+9+11x=-4$ [A] $x=\frac{5}{2}$ [B] $x=-\frac{13}{2}$ [C] $x=-\frac{5}{2}$ [D] $x=\frac{13}{2}$

② $3x=2x+4$ [A] $x=4$ [B] $x=\frac{4}{5}$ [C] $x=-4$ [D] $x=-\frac{4}{5}$

③ $-8x+11+10x+15=4$ [A] $x=11$ [B] $x=15$ [C] $x=-15$ [D] $x=-11$

④ $6x-9=5x-3$ [A] $x=6$ [B] $x=-\frac{12}{11}$ [C] $x=1$ [D] $x=-6$

① $-9x+9+11x=-4$ combine like terms

$2x+9=-4$

$-9 \quad -9$

$2x=-13$ use inverse operations to isolate the variable.

$\frac{2x}{2}=\frac{-13}{2}$

$x=\frac{-13}{2}$

② $3x=2x+4$ variables on one side and constants on the other. Use inverse operations to isolate the variable

$-2x \quad -2x$

$x=4$

③ $-8x+11+10x+15=4$ combine like terms then use inverse operations to isolate the variable.

$2x+26=4$

$-26 \quad -26$

$\frac{2x}{2}=\frac{-22}{2}$

$x=-11$

④ $6x-9=5x-3$ variables on one side and constants on the other. Use inverse operations to isolate the variable.

$-5x \quad -5x$

$x-9=-3$

$+9 \quad +9$

$x=6$

April 17th

Name _____ Date _____

Practice by Objective

8.2.2.c

PA. A.3.1

1 What is the value of the expression?

$$(9 - 3)^2 - 200 \div 8$$

A −20.5
B −13
C 11
D 47

2 What is the value of the expression?

$$27 + (54 \div (-3)^3)$$

A 25
B 21
C −6
D −9

3 What is the value of the expression?

$$48 \div 2 + 4^2 - (6 + 2) \times 3$$

A 108
B 72
C 16
D 8

4 What is the value of the expression?

$$13 - (-10)^2 \div (5^2 \times 4)$$

A −3
B 12
C 13.5
D 29

5 What is the value of the expression?

$$(9 - 1.2 \div 0.2)^2 \times 5^0$$

A 0
B 6
C 7.8
D 9

6 What is the value of the expression?

$$\left(3\frac{1}{2} - 2\frac{1}{4}\right) \times 4 + 20 \div 5$$

A 5
B 6
C 9
D 10

April 17th

Name KEY Date

Practice by Objective

8.2.2.c

use your calculator or PA. A.3.1 order of operations

1 What is the value of the expression?

$(9 - 3)^2 - 200 \div 8$

A -20.5
B -13
C 11
D 47

2 What is the value of the expression?

$27 + (54 \div (-3)^3)$

A 25
B 21
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D -9

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$48 \div 2 + 4^2 - (6 + 2) \times 3$

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B 12
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$(9 - 1.2 \div 0.2)^2 \times 5^0$

A 0
B 6
C 7.8
D 9

6 What is the value of the expression?

$\left(3\frac{1}{2} - 2\frac{1}{4}\right) \times 4 + 20 \div 5$

A 5
B 6
C 9
D 10