Spiral 1/31
Math 1

Name: _____
Date: _____Period: _____

<u>Directions</u>: Complete the following problems. Show all of your work. You MUST write your answer in the answer blank. Remember to include labels when necessary!

1) A line, y = mx + b, passes through the point (1, 6) and is parallel to y = 4x + 6. What is the value of b?

2) Which equation represents the line that is perpendicular to the graph of 4x + 3y = 9 and passes through the point (–2, 3)?

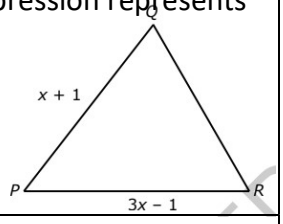
A $3x - 4y = -18$ B $3x + 4y = 18$
C $3x - 4y = -6$ D $3x + 4y = 6$

3) What is the midpoint of the longest side of the triangle with vertices (1, 4), (3, 4), and (3, 6)?

A (1, 1) B (2, 4)
C (2, 5) D (3, 5)

4) The perimeter of the triangle below is 8x – 6. Which expression represents the length of QR?

A 4x – 4
B 4x – 6
C 6x – 4
D 6x – 8



5) Write an equation in **slope-intercept form** of the line that passes through the point (1, -10) and is perpendicular to the line y = -1/3 x + 5.

6) What is the value of x where the graphs of f(x) and g(x) intersect?
f(x) = 3x + 7
g(x) = 2x + 12

7) The vertices of a rectangle are located at (1, 2), (5, 0), (2, –6), and (–2, –4). What is the area of the rectangle?

A 20 un^2 B 30 un^2
C 35 un^2 D 45 un^2

8) Is the following relation a function?
{(1, 3), (11,-2), (-4, 3), (0, 5), and (2, 6)}

9) Find the slope between the two points: (-4, 2) (2, -6)

10) Simplify the following polynomial:
$2x - 5 + 3x + 8$

11) Solve the following algebraic proportion by cross multiplying and using the distributive property:

$$\frac{9}{3x-6} = \frac{6}{5x+4}$$

12) Solve the following inequality:
$4 - 5x < 2(1 - 3x)$

13) What is the slope between points (-8, -3) and (4, 5) on the coordinate plane?

14) Solve for x: $2x - 4 = x + 7$

15) The low temperatures for the previous 2 days in Raleigh were 67 degrees and 63 degrees. What would the temperature need to be for the 3rd day so that the average temperature is at least 66 degrees?

<u>Answers</u>

1) _____
2) _____
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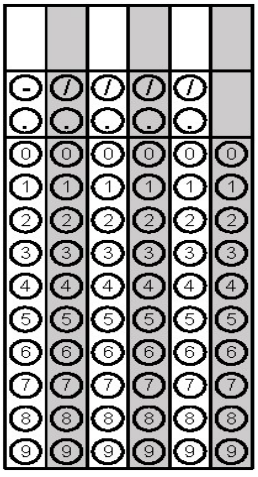
12) _____
13) _____
14) _____
15) GRID RESPONSE



Spiral 2/7 Name: _____

Math 1 Date: _____Period: _____

<u>Directions</u>: Complete the following problems. Show all of your work. You MUST write your answer in the answer blank. Remember to include labels when necessary!

1) Joanna has a total of 50 coins in her purse. The coins are either nickels or quarters. The total value of the coins is $7.10. Which system of equations can be used to determine the number of nickels, n, and quarters, q, that Joanna has in her purse?

A $n + q = 50$ $0.05n + 0.25q = 7.10$

B $n + q = 7.10$ $50n + 50q = 7.10$

C $0.05n + 0.25q = 50$ $n + q = 7.10$

D $0.05n + 0.25q = 7.10$ $50n + 50q = 7.10$

2) A line has a slope of $-\frac{1}{2}$ and a y-intercept of 3. Which of the following is the equation of a line parallel to this line but is not the same line?

A. $x + 2y = 3$
B. $x - 2y = -6$
C. $x + 2y = 6$
D. $x - 2y = -3$

3) How many solutions would this system of equations have?

$2x + 2y = 16$

$4x + 3y = 27$

A one solution
B no solution
C infinitely many solutions

4) Karen has two dogs. The larger dog weighs 1.4 pounds more than the smaller dog. The combined weight of the two dogs is 12.6 pounds. What is the weight, in pounds, of the smaller dog?

5) Write an explicit function for the following sequence:

4, 12, 36, 108,…

6) What is the value of x in the system of equations shown below?

$5x + 4y = 1$

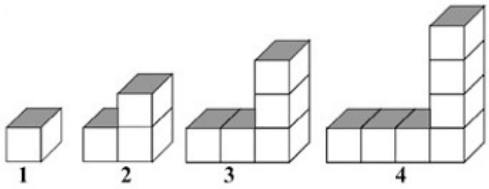
$y = 1 - x$

7) What is the slope of the linear function below:

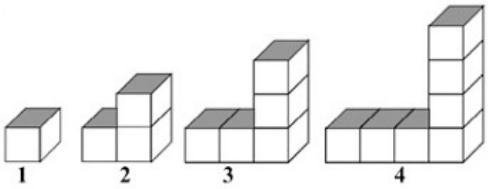
$8x - 3y = 12$

8) A homeowner's monthly telephone bill can be calculated using $b = 0.08m + 32.50$ where m is the number of minutes the phone is used each month. Whether a customer uses the phone or not, there is a monthly fee. What is this monthly fee?

9) Write an explicit equation to model the number of cubes shown:



10) Write a recursive equation to model the number of cubes shown:



11) Write an equation in slope-intercept form that goes through (3, 3) and (1, -5).

12) Write the equation in slope-intercept form: $-3x + 4y = -12$

13) During a football play, DeSean Jackson runs a straight route 40 yards up the sideline before turning around and catching a pass thrown by Michael Vick. On the opposing team, a defender who started 20 yards across the field from Jackson saw the play setup and ran a slant towards Jackson. What was the *distance* the defender had to run to get to the spot where Jackson caught the ball? Round your answer to the nearest tenth if necessary.

14) Britt deposited $2,000 into a savings account that pays an annual interest rate of 8% compounded annually. Determine the amount of money in the savings account after 20 years. Round answer to nearest cent.

15) A right triangle has legs measuring 15 meters and 20 meters. What is the length of the hypotenuse?

<u>Answers</u>

1) _____
2) _____
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11) _____
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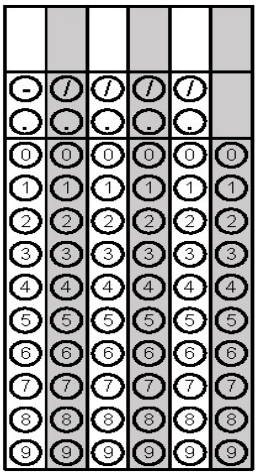
14) _____
15) GRID RESPONSE



Spiral 2/14
Math 1

Name: _____
Date: _____Period: _____

<u>Directions</u>: Complete the following problems. Show all of your work. You MUST write your answer in the answer blank. Remember to include labels when necessary!

1) What is the y-intercept of the linear equation -3x + 5y = 30? Write as an ordered pair.

2) Solve the system using substitution:
y= 2x – 4 -3x + 2y = -6

3) How many solutions would this system of equations have?

$2x + 3y = 12$

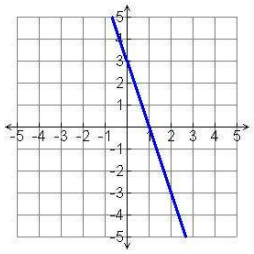
$2x + 3y = 18$

A one solution
B no solution
C infinitely many solutions

4) Create a rule for the input-output table below. Write it in slope-intercept form.

Input	Output
-3	-10
-2	-7
-1	-4
0	-1

5) Write the equation of the line shown in slope-intercept form.



6.) Cameron and Mitchell kept track of how many baskets were scored in a basketball game for different lengths of time. The chart below shows their results. Which linear equation represents their findings?

Time (minutes)	6	9	24
Number of Baskets	3	5	15

A. $3x - 2y = 12$ **B.** $2x - y = 13$
C. $y = 2x - 9$ **D.** $y = (\frac{2}{3})x - 1$

7) Write the equation in standard form.
$y = -9x - 13$

8) Identify the x-intercept of the following equation. $2x + 3y = 6$

9) Which set of ordered pairs does not represent a function?
A. {(-6, -2), (-3, -1), (0, 1), (1, 3)}
B. {(-8, 0), (-8, -3), (-8, -6), (-8, -9)}
C. {(-1, 1), (0, 2), (1, 4), (2, 7)}
D. {(-4, -1), (-1, 1), (2, 3), (8, 7)}

10.) Given the initial term and either common difference or common ratio, write the first 6 terms of the sequence.
$a_1 = 7, r = 2$

11.) Determine if the sequence is arithmetic or geometric. Then determine the common difference or the common ratio.
2, 6, 18, 54, 162, ...

12.) What is the slope of the line represented by the linear equation below? Write your answer as a fraction in lowest terms if necessary.
$\frac{1}{8}x + 3y = 3$

13) Which ordered pair would represent a point that would lie on the graph of $y = 4x - 10$?
A. (4, -10) B. (4, 6)
C. (-4, 6) D. (-4, 10)

14) The sides of a triangle are 5, 6 and 10 units. Find the length of the longest side of a similar triangle whose shortest side is 15.
a. 10 b. 15 c. 18 d. 30

15) A ladder is 13 ft. tall and leans against a house that's 12 feet tall. How far is the base of the ladder from the house?

<u>Answers</u>

1) _____
2) _____
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12) _____
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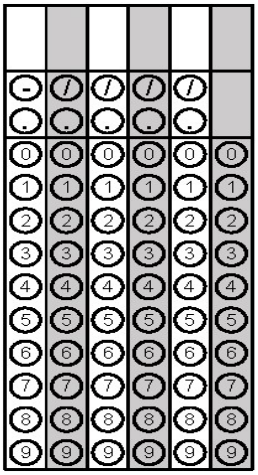
15) GRID RESPONSE



Spiral 2/21 Name: _____

Math 1 Date: _____Period: _____

<u>Directions</u>: Complete the following problems. Show all of your work. You MUST write your answer in the answer blank. Remember to include labels when necessary!

1) Sally works at a store. Let x represent her monthly paycheck and y represent her monthly savings. She will save at least $20 more than half of her paycheck each month. She can save at most $80 more than 2/3 of her paycheck each month. Her paycheck each month is at least $1,200 but no more than $1,850. Which system of inequalities represents these constraints?

A. $y \geq \frac{1}{2}x + 20$, $y \leq \frac{2}{3}x + 80$, $x \geq 1{,}200$, $x \leq 1{,}850$

B. $y \leq \frac{1}{2}x + 20$, $y \geq \frac{2}{3}x + 80$, $x \leq 1{,}200$, $x \geq 1{,}850$

2) Solve the system using substitution.

y=2 2x + 3y = -6

3) How many solutions would this system of equations have?

A one solution

B no solution

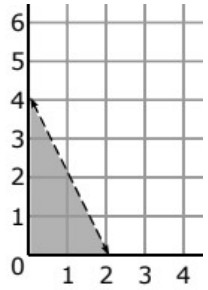
C infinitely many solutions

$2x + 2y = 8$

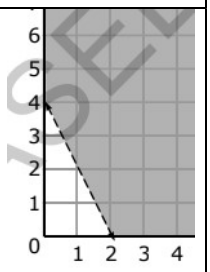
$4x + 4y = 16$

4) Suppose there are 50,000 deer in a forest and the growth factor for the population is 1.2 per year. Write an equation you could use to find the deer population p in n years.

5) Write the inequality represented below in **slope-intercept form**.



6) Write the inequality represented below in **standard form**.



7) Solve.

$36 > 4(2d + 10)$

8) Find the slope of the given equation.

$-15x - 3y = -24$

9) The mouse population in Apex is around 25,000 but is decreasing in size at a rate of 20% per year. What will the mouse population be after 3 years?

10) Write an explicit equation to represent the situation in #9.

11) Which function best represents the following relationship, where x is the number of gigabytes downloaded and y is the monthly charge? *An internet provider charges $19.95 per month plus $7.50 for every gigabyte downloaded.*

A. $y = 19.95x + 7.5$ B. $y = 7.5x + 19.95$

C. $y = x(7.5 + 19.95)$ D. $y = 7.5y + 19.95$

12) Which is an equation of a line that intersects that crosses the points (0, 2) and (1, 0)?

A. $y = 2x + 2$

B. $y = -2 + 2$

C. $2y = -2x + 2$

D. $y = -2x + 2$

13) Given the equation $y = 5(0.4^x)$, identify if it represents growth or decay, if it is linear or exponential, and what the initial amount is.

14) Given the equation y = 5 - 0.4x, identify if it represents growth or decay, if it is linear or exponential, and what the initial amount is.

15) The cost to rent a construction crane is $750 per day plus $250 per hour of use. What is the maximum number of hours the crane can be used each day if the rental cost is not to exceed $2500 per day?

<u>Answers</u>

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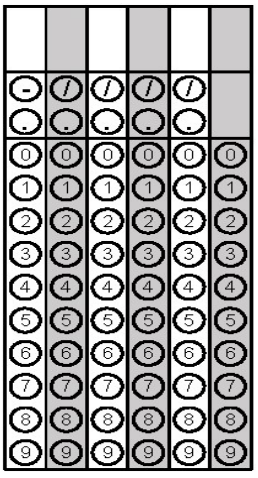
15) GRID RESPONSE



Spiral 2/28 Name: _____

Math 1 Date: _____Period: _____

Directions: Complete the following problems. Show all of your work. You MUST write your answer in the answer blank. Remember to include labels when necessary!

1) Identify the y-intercept of the line $2x + 3y = 6$. Write as an ordered pair.

2) Use substitution to solve:
$y = 2x - 1$ $3x + y = 5$

3) Put the following equation in **slope-intercept** form: $y - 1 = 2(x - 4)$

4) Solve the following equation for y:
$2x + 7y = 13$

5) Solve using elimination:
$2x + 3y = -6$
$-2x - 3y = 12$

6) What is the equation of the line that passes through the points (−6, 1) and (4,−4) in **slope-intercept form**?

7) A line segment has endpoints B(-6, 4) and Z(-8, 6). The point M is the midpoint of line $\overline{BZ}$. What is the equation of the line in **slope-intercept form** perpendicular to $\overline{BZ}$ passing through M?

8) Which set shows all the solutions for $\sqrt[3]{64}$?

A. 4 only B. -4 and 4
C. 8 only D. -8 and 8

9) Alicia is selling homemade jars of jelly as a fundraiser. She spent $50 on supplies for making the jelly. She plans on selling the jars for $7.50 each. Write a function that models her jelly profits (p) based on the number of jars she sells (j).

10) The number of chirps a cricket makes in a minute is a function of the temperature. The table below shows the number of chirps and the corresponding temperature. *Assuming a linear relationship*, find an equation in **slope-intercept form** relating the temperature to the number of chirps.

Temperature (degrees F)	50	55	65	75
number of chirps	40	60	100	140

11) .) Is the following set of data linear or nonlinear?

x	y
2	4
3	8
4	15
5	25

12) A population of 2500 triples in size every 10 years. What will the population be in 30 years?

13) The length of a rectangle is three times the width. If the perimeter of the rectangles is 48 cm, what is the area of the rectangle?

14) Simplify. Write your answer as a fraction in simplest form.

$$\frac{10^{-3} \cdot 10^{-5}}{10^{-7}}$$

15) Coach Rodriquez drew his football team's next play on a coordinate grid. He placed Cam at (1,3) who will be passing the ball to Greg at (-6, 3). What is the distance, in yards, of the pass from Cam to Greg?

Answers

1) _____
2) _____
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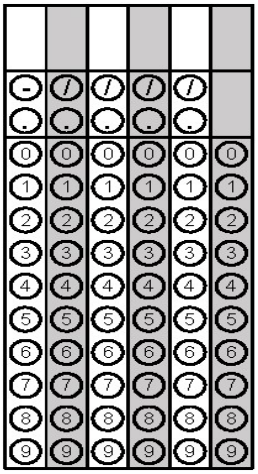
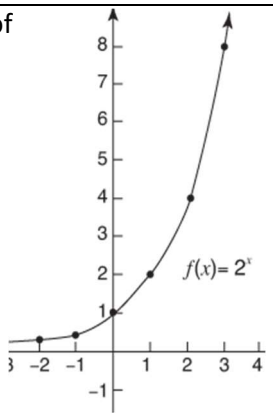
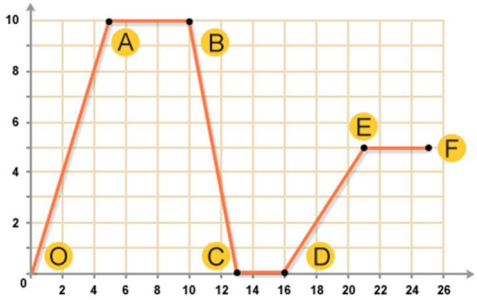
15) GRID RESPONSE



Spiral 3/6 Name: _____

Math 1 Date: _____Period: _____

Directions: Complete the following problems. Show all of your work. You MUST write your answer in the answer blank. Remember to include labels when necessary!

1) Write the following in standard form: $(x + 2)(3x – 3)$	2) Aimee is looking at a gym membership. She gets charged a registration fee but then a fixed rate per month. Is this an example of a discrete or continuous function? Would the function be linear or exponential?
3) In **slope-intercept form**, what the equation of the line perpendicular to $y = -\frac{2}{3}x - 1$ that goes through the point (4, 3) ?	4) Simplify. Write your answer in standard form. $(4y^2 - 5y + 3) + (2y^2 + 7y - 7)$
5) What is the value of f(3)? 	6) What is the rate of change from point B to point C? Write your answer as an improper fraction if necessary. 
7) Laura spends $16 on notebooks and pencils. Notebooks cost $3.00 and pencils $0.50. If Laura bought 12 items, how many notebooks did she buy?	8) The formula for potential energy is P = mgh where P is potential energy, m is mass, g is gravity, and h is height. Rewrite the formula in terms of gravity.
9) The length of a garden is 4 m more than 3 times its width. If the perimeter of the garden is 56m, what is the area of the garden?	10) Surbi bought a car for $25,000. The price of the car depreciated each year and the value of the car is modeled by the function $f(x)=25{,}000(.85)^x$. By what percent does the car value depreciate each year?
11) Line segment AB has a midpoint, M. If M is at (-1, 5) and B is at (3, 2), what is the equation of the line in **slope-intercept form** that is parallel to AB has passes through point A?	12) In 1995 there were 85 rabbits in Central park. The population increased by 15% each year. If the rabbit population continued to grow at the same rate each year, how many rabbits are in Central Park in 2015? Round your answer to the nearest whole rabbit if necessary.
13) Simplify: $-8a^{-3}b^2c^{-2}$	14) Simply: $(3x^{-4})^2(5x^{-2})$
15) Given the system of equations below, find the value of x + y. 3y + 2x = 6 5y – 2x = 10	

Answers

1) _____

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3) _____

4) _____

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6) _____

7) _____

8) _____

9) _____

10) _____

11) _____

12) _____

13) _____

14) _____

15) GRID RESPONSE