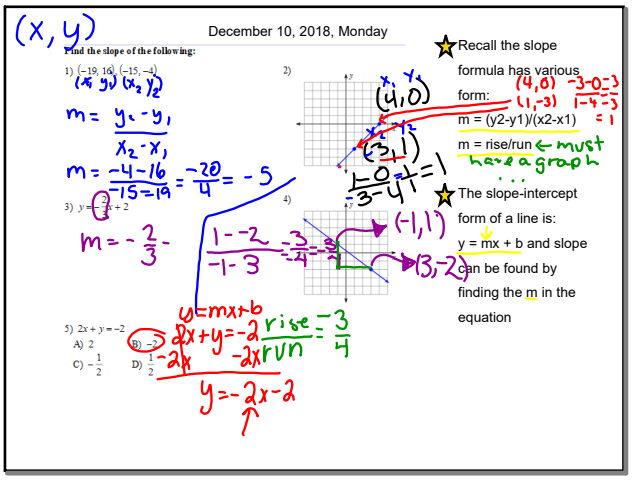

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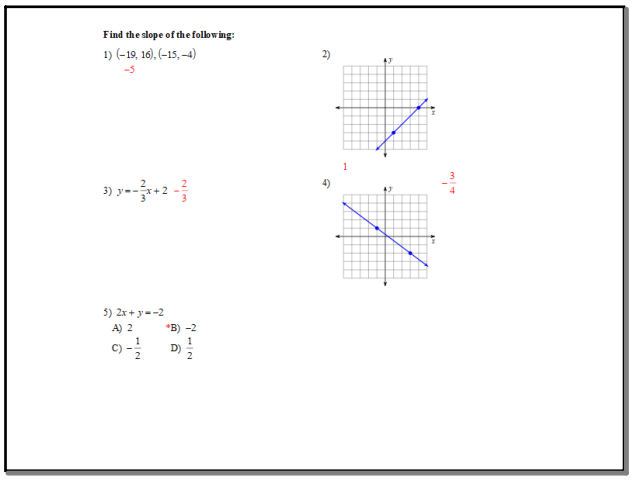

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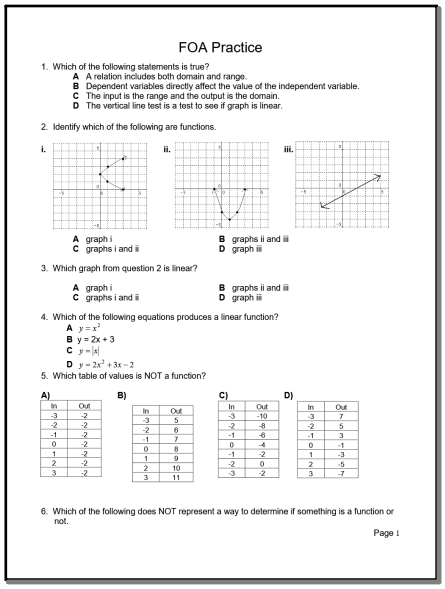


FOA Practice

1. Which of the following statements is true?
   - **A** A relation includes both domain and range.
   - **B** Dependent variables directly affect the value of the independent variable.
   - **C** The input is the range and the output is the domain.
   - **D** The vertical line test is a test to see if graph is linear.

2. Identify which of the following are functions.

i. ii. iii.

   - **A** graph i
   - **B** graphs ii and iii
   - **C** graphs i and ii
   - **D** graph iii

3. Which graph from question 2 is linear?
   - **A** graph i
   - **B** graphs ii and iii
   - **C** graphs i and ii
   - **D** graph iii

4. Which of the following equations produces a linear function?
   - **A** $y = x^2$
   - **B** $y = 2x + 3$
   - **C** $y = |x|$
   - **D** $y = 2x^2 + 3x - 2$

5. Which table of values is NOT a function?

A)

In	Out
-3	-2
-2	-2
-1	-2
0	-2
1	-2
2	-2
3	-2

B)

In	Out
-3	5
-2	6
-1	7
0	8
1	9
2	10
3	11

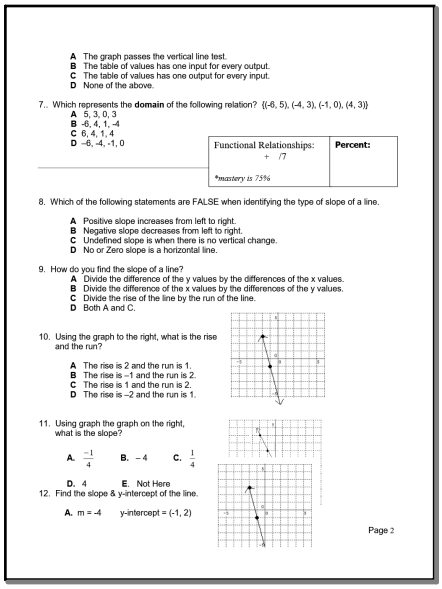
C)

In	Out
-3	-10
-2	-8
-1	-6
0	-4
-1	-2
-2	0
-3	-2

D)

In	Out
-3	7
-2	5
-1	3
0	-1
1	-3
2	-5
3	-7

6. Which of the following does NOT represent a way to determine if something is a function or not.



   - **A** The graph passes the vertical line test.
   - **B** The table of values has one input for every output.
   - **C** The table of values has one output for every input.
   - **D** None of the above.

7.. Which represents the **domain** of the following relation? {(-6, 5), (-4, 3), (-1, 0), (4, 3)}
   - **A** 5, 3, 0, 3
   - **B** -6, 4, 1, -4
   - **C** 6, 4, 1, 4
   - **D** −6, -4, -1, 0

Functional Relationships: + /7 *mastery is 75%	Percent:

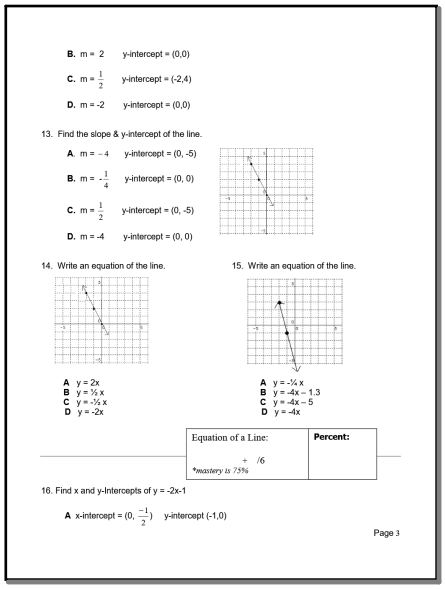
8. Which of the following statements are FALSE when identifying the type of slope of a line.
   - **A** Positive slope increases from left to right.
   - **B** Negative slope decreases from left to right.
   - **C** Undefined slope is when there is no vertical change.
   - **D** No or Zero slope is a horizontal line.

9. How do you find the slope of a line?
   - **A** Divide the difference of the y values by the differences of the x values.
   - **B** Divide the difference of the x values by the differences of the y values.
   - **C** Divide the rise of the line by the run of the line.
   - **D** Both A and C.

10. Using the graph to the right, what is the rise and the run?
    - **A** The rise is 2 and the run is 1.
    - **B** The rise is –1 and the run is 2.
    - **C** The rise is 1 and the run is 2.
    - **D** The rise is –2 and the run is 1.

11. Using graph the graph on the right, what is the slope?
    - **A.** $\frac{-1}{4}$ **B.** -4 **C.** $\frac{1}{4}$
    - **D.** 4 **E.** Not Here

12. Find the slope & y-intercept of the line.
    - **A.** m = -4 y-intercept = (-1, 2)



   - **B.** m = 2 y-intercept = (0,0)
   - **C.** m = $\frac{1}{2}$ y-intercept = (-2,4)
   - **D.** m = -2 y-intercept = (0,0)

13. Find the slope & y-intercept of the line.
    - **A.** m = – 4 y-intercept = (0, -5)
    - **B.** m = $-\frac{1}{4}$ y-intercept = (0, 0)
    - **C.** m = $\frac{1}{2}$ y-intercept = (0, -5)
    - **D.** m = -4 y-intercept = (0, 0)

14. Write an equation of the line.

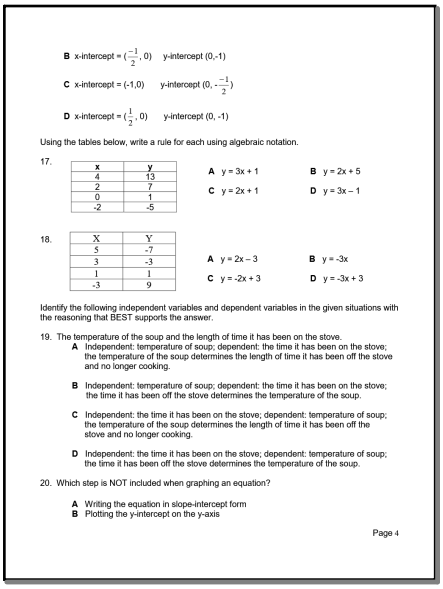
15. Write an equation of the line.

   - **A** y = 2x
   - **B** y = ½ x
   - **C** y = -½ x
   - **D** y = -2x

   - **A** y = -¼ x
   - **B** y = -4x – 1.3
   - **C** y = -4x – 5
   - **D** y = -4x

Equation of a Line: + /6 *mastery is 75%	Percent:

16. Find x and y-Intercepts of y = -2x-1
    - **A** x-intercept = $(0, \frac{-1}{2})$ y-intercept (-1,0)



    - **B** x-intercept = $(\frac{-1}{2}, 0)$ y-intercept (0,-1)
    - **C** x-intercept = (-1,0) y-intercept $(0, \frac{-1}{2})$
    - **D** x-intercept = $(\frac{1}{2}, 0)$ y-intercept (0, -1)

Using the tables below, write a rule for each using algebraic notation.

17.

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

   - **A** y = 3x + 1
   - **B** y = 2x + 5
   - **C** y = 2x + 1
   - **D** y = 3x – 1

18.

X	Y
5	-7
3	-3
1	1
-3	9

   - **A** y = 2x – 3
   - **B** y = -3x
   - **C** y = -2x + 3
   - **D** y = -3x + 3

Identify the following independent variables and dependent variables in the given situations with the reasoning that BEST supports the answer.

19. The temperature of the soup and the length of time it has been on the stove.
    - **A** Independent: temperature of soup; dependent: the time it has been on the stove; the temperature of the soup determines the length of time it has been off the stove and no longer cooking.
    - **B** Independent: temperature of soup; dependent: the time it has been on the stove; the time it has been off the stove determines the temperature of the soup.
    - **C** Independent: the time it has been on the stove; dependent: temperature of soup; the temperature of the soup determines the length of time it has been off the stove and no longer cooking.
    - **D** Independent: the time it has been on the stove; dependent: temperature of soup; the time it has been off the stove determines the temperature of the soup.

20. Which step is NOT included when graphing an equation?
    - **A** Writing the equation in slope-intercept form
    - **B** Plotting the y-intercept on the y-axis

C Start from the origin and plot the slope as a fraction of rise over run
D Draw a line through the two points to represent all of the possible solutions for the equation given

21. Identify which table that represents the equation, y = 3x + 2, and is supported with the reasoning given.

Table 1

X	-1	3	-3	5
Y	-1	7	-5	11

Table 2

X	2	-4	-2	6
Y	8	-10	-4	20

A Table 1 because when substituting in (-1, -1) in for x and y and then solved, it worked with -1 = -1.

B None, both table 1 and 2 have coordinate points that do not lie on the line of the equation because the tables give points of nonlinear equations.

C Both table 1 and 2 work for the equation, because when substituting the coordinates from the table in for x and y, the equation is true.

D Table 2 because when finding the slope between (2, 8) and (-4, -10), m = 3. Then substituting (2, 8) in for x and y, b = 2. This worked for all points.

22. Identify the slope that goes through the two given coordinate points, (-3, 0) (3, 2).

A $\frac{1}{3}$ B 3

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

Linear Equations:	Percent:
+ /7	
mastery is 75%	

23. Using the inequality -2x + 10 ≤ 20, which step is INCORRECT when solving?

A Subtract 10 to each side of the inequality

B Divide by -2 on each side of the inequality and flip the inequality sign
C Divide by -2 on each side of the inequality
D x ≥ -5

24. Using the inequality -16k -32 > -48, what step is correct in solving:

A First, subtract 32 to each side, then divide by -16 and flip the sign
B First, divide both sides by 16, then add 32 to both sides and leave the sign
C First, subtract 48 from both sides, divide by -16 and leave the sign
D First, add 32 to both sides, then divide by -16 and flip the sign

25. Describe the graph of the inequality x > 3 on a number line.

A There is a filled circle at 3 and the graph is shaded to the left.
B There is an empty circle at 3 and the graph is shaded to the left.
C There is a filled circle at 3 and the graph is shaded to the right.
D There is an empty circle at 3 and the graph is shaded to the right.

26. Mrs. Kowalinski is taking the five math teachers to dinner. She has budgeted $250 and knows she will pay $40 for the tip. How much can each person spend on their dinner so that Mrs. K will not go over her budget?

A 250 < 6x + 40 B 250 > 6x + 40

C 250 ≥ 6x + 40 D 250 ≤ 6x + 40

Inequalities:	Percent:
+ /4	
mastery is 75%	

27. The **ratio** of yogurt to ice cream sold at Baskin Robbins is 1:4. Of the next 100 cones sold, how many do you estimate will be yogurt?

A 25
B 20

C 80
D 75

28. A **function** is:

A a graph that has only one output per input
B a graph that has only one input per output
C a graph that has multiple domain values
D a graph that has multiple range values

29. The definition of **slope** is:

A the rate of change of a linear equation
B rise over run
C the vertical change over the horizontal change of a line
D the multiplier of the input values in a linear equation
E All of the Above

30. **Slope-intercept** form is:

A y = mx + b
B the form that represents the relationship between the input/output
C the standard form of the equation
D Both A and B
E All of the Above

31. What statement about **slope-intercept form** is INCORRECT?

A the **m** represents the slope
B the **y** represents the y-intercept
C the **x** represents the input
D None of the above

32. The **domain** of a graph is:

A all of the possible x values
B all of the possible y values
C a set of coordinates that create a function
D a set of coordinates do not create a function

33. An **intercept** is:

A where the line of an equation crosses each axis
B the points where x or y has a value of zero
C when x and y values are the same
D Both A and B
E All of the Above

Vocabulary:	Percent:
+ /7	
mastery is 75%	

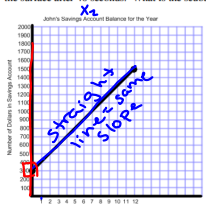
December 11, 2018 Tuesday $ROC = \frac{y_2 - y_1}{x_2 - x_1}$

6. A climber is on a hike. After 2 hours he is at an altitude of 400 feet. After 6 hours, he is at an altitude of 700 feet. What is the average rate of change?

$ROC = \frac{700 - 400}{6 - 2} = \frac{300}{4} = 75$

7. A scuba diver is 30 feet below the surface of the water 10 seconds after he entered the water and 100 feet below the surface after 40 seconds. What is the scuba divers rate of change?

$ROC = \frac{100 - 30}{40 - 10} = \frac{70}{30} = \frac{7}{3}$ seconds



8. Using the graph, what is the rate of change from ~~week~~ 0 to ~~week~~ 1?

9. what is the ROC from ~~week~~ 6 to ~~week~~ 7?

10. Write the equation of the graph.

8) (0, 300) (1, 400)

$\frac{400 - 300}{1 - 0} = 100$

9) (6, 900), (7, 1000)

$\frac{1,000 - 900}{7 - 6} = \frac{100}{1} = 100$

10) $y = mx + b$

$y = 100x + 300$

b = 300 = y-intercept

m = slope = ROC = 100

Dec 7-11:21 AM

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Dec 11-11:01 AM

December 12, 2018 Wednesday

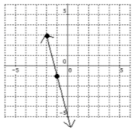
8. Which of the following statements are FALSE when identifying the type of slope of a line.

A Positive slope increases from left to right.
B Negative slope decreases from left to right.
C Undefined slope is when there is no vertical change.
D No or Zero slope is a horizontal line.

9. How do you find the slope of a line?

A Divide the difference of the y values by the differences of the x values.
B Divide the difference of the x values by the differences of the y values.
C Divide the rise of the line by the run of the line.
D Both A and C.

10. Using the graph to the right, what is the rise and the run?



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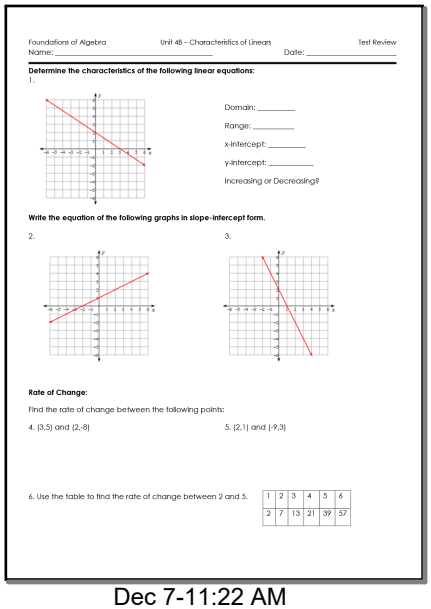

Foundations of Algebra Unit 4B – Characteristics of Linears Test Review
Name: _____ Date: _____

Determine the characteristics of the following linear equations:

1.

Domain: _____
Range: _____
x-intercept: _____
y-intercept: _____
Increasing or Decreasing?

Write the equation of the following graphs in slope-intercept form.

2. 3.

Rate of Change:

Find the rate of change between the following points:

4. (3,5) and (2,-8) 5. (2,1) and (-9,3)

6. Use the table to find the rate of change between 2 and 5.

1	2	3	4	5	6
2	7	13	21	39	57

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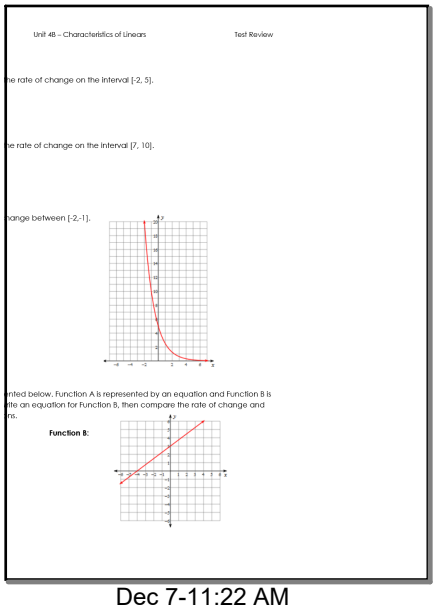

Unit 4B – Characteristics of Linears Test Review

he rate of change on the interval [-2, 5].

e rate of change on the interval [7, 10].

hange between [-2,-1].

nted below. Function A is represented by an equation and Function B is ite an equation for Function B, then compare the rate of change and rs.

Function B:

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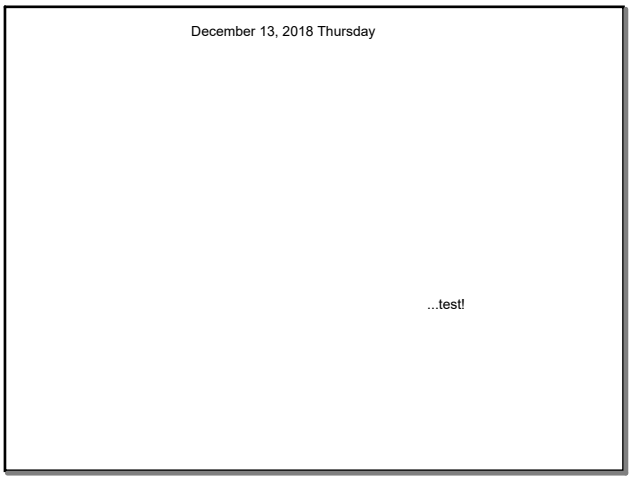
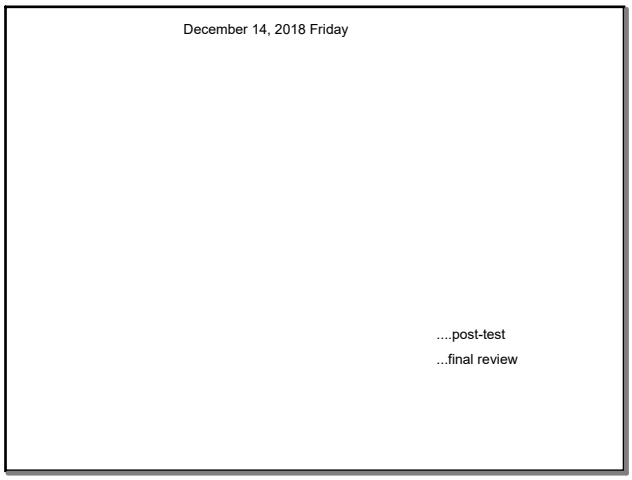


December 13, 2018 Thursday

...test!

Dec 7-11:23 AM



December 14, 2018 Friday

....post-test
...final review

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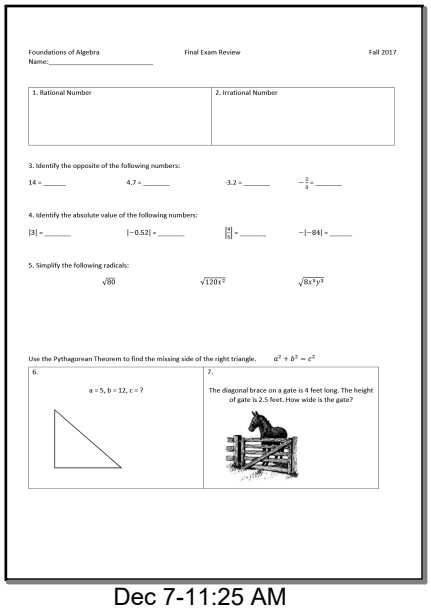


Foundations of Algebra Final Exam Review Fall 2017
Name:_____

1. Rational Number	2. Irrational Number

3. Identify the opposite of the following numbers:

14 = _____ 4.7 = _____ -3.2 = _____ $-\frac{2}{3}$ = _____

4. Identify the absolute value of the following numbers:

|3| = _____ |−0.52| = _____ $\left|\frac{4}{5}\right|$ = _____ −|−84| = _____

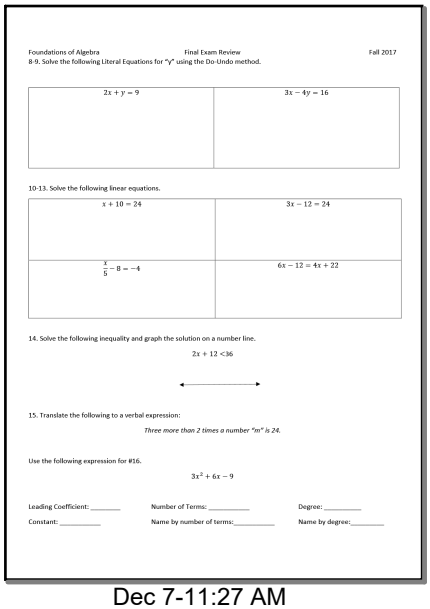
5. Simplify the following radicals:

$\sqrt{80}$ $\sqrt{120x^2}$ $\sqrt{8x^3y^2}$

Use the Pythagorean Theorem to find the missing side of the right triangle. $a^2 + b^2 = c^2$

6.	7.
a = 5, b = 12, c = ?	The diagonal brace on a gate is 4 feet long. The height of gate is 2.5 feet. How wide is the gate?

Dec 7-11:25 AM



Foundations of Algebra Final Exam Review Fall 2017
8-9. Solve the following Literal Equations for "y" using the Do-Undo method.

$2x + y = 9$	$3x - 4y = 16$

10-13. Solve the following linear equations.

$x + 10 = 24$	$3x - 12 = 24$
$\frac{x}{5} - 8 = -4$	$6x - 12 = 4x + 22$

14. Solve the following inequality and graph the solution on a number line.

$2x + 12 < 36$

15. Translate the following to a verbal expression:

Three more than 2 times a number "m" is 24.

Use the following expression for #16.

$3x^2 + 6x - 9$

Leading Coefficient: _____ Number of Terms: _____ Degree: _____
Constant: _____ Name by number of terms:_____ Name by degree:_____

Dec 7-11:27 AM

Foundations of Algebra Final Exam Review Fall 2017

17. Two consecutive numbers have a sum of 97. What are the numbers?

18. Convert: 4.5 meters = _____cm

19. Convert: 11.25 dl = _____dkl

21-23. Simplify the following fractions:

$\frac{2}{3}+\frac{7}{4}$	$\frac{3}{4}-\frac{1}{8}$
$\frac{3}{5}\cdot\frac{2}{7}$	$\frac{2}{9}\div\frac{3}{8}$

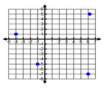
24. Convert the following to slope-intercept form of a line

$$2x-4y=-16$$

25. Identify the slope and y-intercept of the equation above.

m= _____ b=_____

26. Is the following a function: Explain your reasoning.



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Foundations of Algebra Final Exam Review Fall 2017

27-28. Use the following function:

$$f(x)=-3x^2+16x-24$$

27. $f(2)=$ _____ 28. $f(-5)=$ ____

Use the following sequence for 29-33:

12, 14, 16, 18, 20, … …

29. What are the next 3 terms in the sequence? _____, _____, _____

30. What is the common difference? d = _____

31. What is the zero term? a_0 = _____

32. What is the explicit formula? _____

33. Find a_{212}= _____

34. Find a_{35} = _____

Find the rate of change for 35-36.

$(3,12),(-4,7)$	$(21,-12),(-8,-6)$

Dec 7-11:27 AM