Name Key Pre-Algebra – Period ____ Date Test on Friday 1/19/18

Unit 4 Practice and Review for Unit 4 TEST

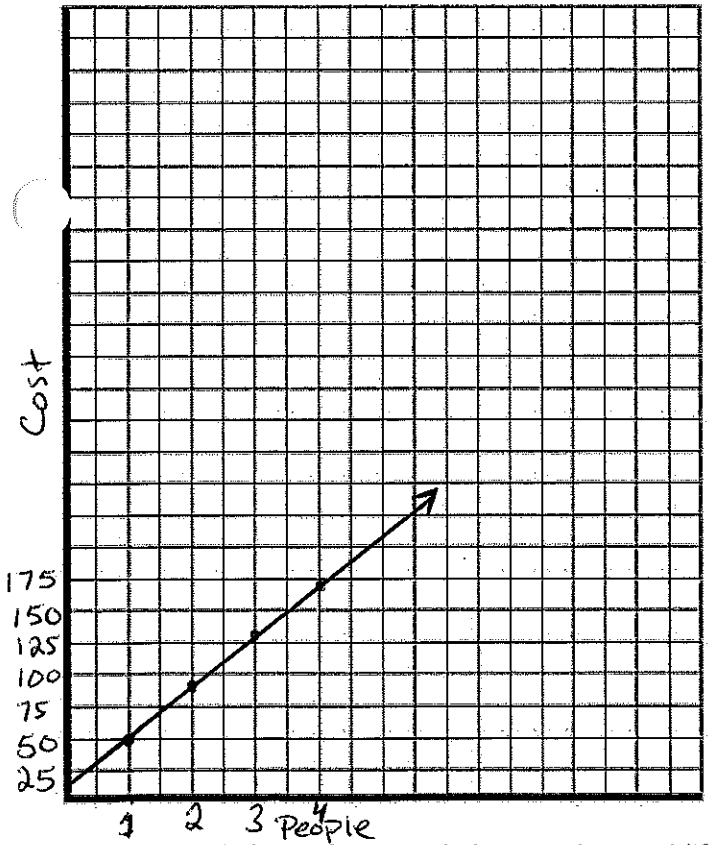
Directions: *Show all work for partial credit. Round answers to the nearest hundredth when needed. Remember to label answers.*

1. A pass to Lake Compounce is $40 per person, and it costs $10 to park your car.

   a. Create a table for the cost for 1 - 4 people.

Number of people (x)	Calculation – show all work	Total cost (y)
1	40(1) +10	50
2	40(2)+10	90
3	40(3) +10	130
4	40(4)+10	170

   b. Create a graph.



   c. Write a linear equation for this problem.

$y = 40x + 10$

   d. How many people went, if you spent $250?

$250 = 40x + 10$

$-10 \quad -10$

$\frac{240}{40} = \frac{40x}{40}$

$6 = x$

6 people

2. How do linear functions help us analyze real-life situations and solve practical problems?

3.. Barbara is solving an equation:

- Circle the very first step in which you find an error. There may be more than one. Your job is to circle the first mistake.
- Fill in the blanks to answer the questions.

Equation: $-\frac{1}{4}(28x-12)-6=11$

+3

Step 1: $-7x(-3)-6=11$ What property is this? distributive

Step 2: $-7x-9=11$ What step is this? Combine like terms

Step 3: $-7x-9=11$
$+9 \quad +9$ What is she doing here? Constants on one side

Step 4: $\frac{-7x}{-7}=\frac{21}{-7}$ What is she doing here? Solving for x

$X=-3$

Describe Barbara's error(s) and how she should correct her work.

Solve the equation to find the correct value of x.

$$-\frac{1}{4}(28x-12)-6=11$$

$$-7x+3-6=11$$

$$-7x-3=11$$
$$+3 \quad +3$$

$$\frac{-7x}{-7}=\frac{14}{-7}$$

$$x=-2$$

4. Show all work to find the number of solutions for each equation.

a. $4(2b + 6) = 6b + 4$

$8b + 24 = 6b + 4$

$-6b \quad -6b$

$2b + 24 = 4$

$-24 \quad -24$

$\frac{2b}{2} = \frac{-20}{2}$

$b = -10$ one solution

b. $-3(4n + 5) = -12n + 10$

$-12n + (-15) = -12n + 10$ no solution

- same variable term
- Different constants

c. $12x - 16 - 2x = 2(5x - 8)$

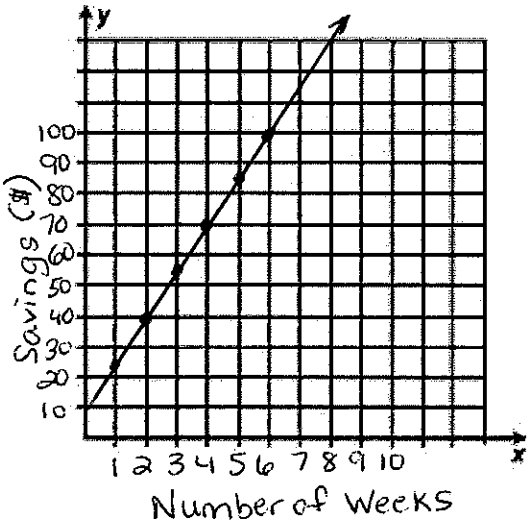
$10x - 16 = 10x - 16$ infinite solutions

- Same variable terms
- Same constants

5. The cost y in dollars to have pizza delivered is found by the equation $y = 7.50 + 9.50x$, where x is the number of pizzas purchased. Select whether each statement is true or false.

True	False	
☐	☒	The graph of $y = 7.50 + 9.50x$ passes through the point (0,0)
☐	☒	The y-intercept represents the cost of delivery which is $9.50
☒	☐	The slope represents the cost of each pizza which is $9.50
☒	☐	The graph of $y = 7.50 + 9.50x$ is a straight line

6. The table shows the amount of money in Will's savings account. Graph the points on the coordinate plane and connect them with a straight line.



Week	Savings ($)
1	25
2	40
3	55
4	70
5	85
6	100

$\frac{40-25}{2-1} = \frac{15}{1} = 15$

What is the constant rate of change? 15, $15 per week

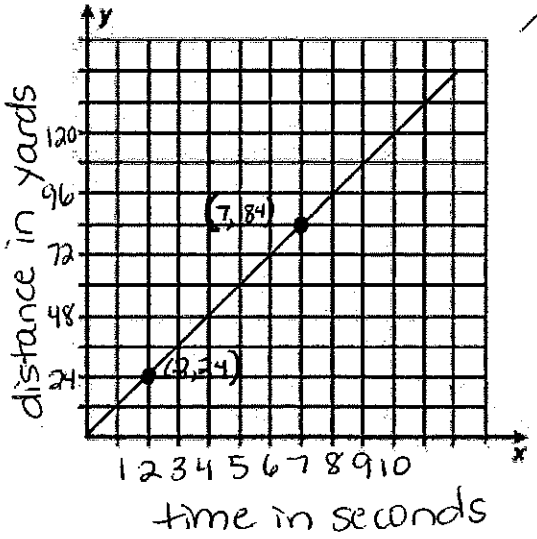
What does the rate of change represent? Write your answer in a complete sentence.

Will saves $15 per week

7. The distance y in yards traveled by a bear in x minutes is shown on the graph below. Each land animal's distance in yards is a direct variation of the time it travels in seconds. Select whether each land animal travels faster than the bear.

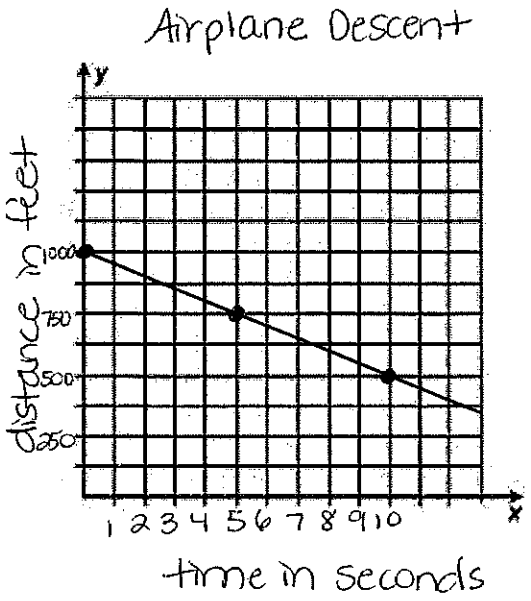
Speed of bear

Unit rate $\frac{24\text{yd}}{2\text{sec}} = \frac{12\text{yd}}{1\text{sec}}$ $y = 12x$



Yes	No	
☒	☐	A fox travels at a speed of 14 yards per second
☐	☒	A moose whose distance in y yards is represented by the equation y=10x, where x is the number of seconds
☒	☐	A panda that travels 75 yards in 6 seconds and 112.5 yards in 9 seconds
☒	☐	A kangaroo whose distance in y yards is represented by the equation y = 15x, where x is the number of seconds

8. An airplane at 1000 feet begins to descend at a constant rate, as shown in the graph. Write the numbers in the boxes to find the slope. **Put your slope in simplest form.** Then write an equation in y = mx + b form to represent the situation.



Slope: _____

(0, 1000)
(5, 750)

$\frac{1000-750}{0-5} = \frac{250}{-5} = -50$

Equation (y = mx + b): $y = -50x + 1000$

↑ slope ↑ y-intercept

9. Reno bakes and sells cakes at the Unified Arts Show. The total amount he charges can be seen in the table. Write numbers in the spaces and use the slope formula to find the slope. Then write an equation in y=mx form to represent the situation.

Number of cupcakes, x	3	4	10
Total Charge ($), y	$36	$48	$120

Slope: 12

unit rate

$\frac{36}{3} = \frac{12}{1} = 12$

Equation (y=mx): $y = 12x$