Algebra Weekly Review #3

Due: **Tuesday**, **December 20, 2016**

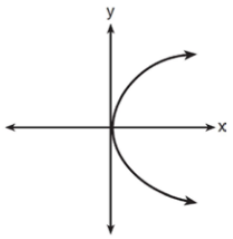
Name _____

_____ 1. Which representations are functions

I.

x	y
2	6
3	–12
4	7
5	5
2	–6

III.



II. $\{(1,1), (2,1), (3,3), (5,,5)\}$

IV $y = 2x + 1$

A. I and II

B. II and IV

C. III, only

D. IV, only

_____ 2. In the set of positive integers, what is the solution set of the inequality $2x - 3 > -17 + 5x$

A. $\{0,1,2,3,4,5\}$

B. $[0, \frac{14}{3}]$

C. $\{x \mid x < \frac{14}{3}\}$

D. $\{0,1,2,3,4\}$

_____ 3. A construction company uses the function $f(p)$ where p is the number of people working on a project, to model the amount of money it spends to complete a project. A reasonable domain for this function would be

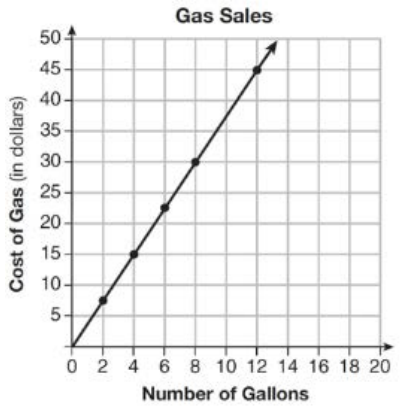
A. Positive Integers

B. Positive Real Numbers

C. Both Positive and Negative Integers

D. Both Positive and Negative Real Numbers

_____ 4. The graph below was created by an employee at a gas station.



Which statement is justified by the graph?

A. If 10 gallons of gas was purchased, $35 was paid

B. For every gallon of gas purchased, $3.75 was paid

C. For every 2 gallons of gas purchased, $5.00 was paid

D. If zero gallons of gas were purchased, zero miles were driven

Short Answer

Please show all work on a separate piece of paper and/or graph paper.

5. An airplane leaves New York City and heads toward Los Angeles. As it climbs, the plane gradually increases its speed until it reaches cruising altitude, at which time it maintains a constant speed for several hours as long as it stays at cruising altitude. After flying for 32 minutes, the plane reaches cruising altitude and has flown 192 miles. After flying for a total of 92 minutes, the plane has flown a total of 762 miles. Determine the speed of the plane, at cruising altitude, in miles per minute.

   Write an equation to represent the number of miles the plane has flown, y, during x minutes at cruising altitude, only. Assuming that the plane maintains its speed at cruising altitude, determine the total number of miles the plane has flown 2 hours into the flight.

6. Sue and Cathy were doing their algebra homework. They were asked to write the equation of the line that passes through the points (-3, 4) and (6, 1).

   Sue wrote: $y-4=-\frac{1}{3}(x+3)$ Kathy wrote: $y=-\frac{1}{3}x+3$

   Justify why both students are correct

   Simply showing the 2 equations are equal does NOT justify the lines pass through the 2 given points

7. The graph of the equation $2x+6y=4$ passes through the point (x, -2). What is the value of x?

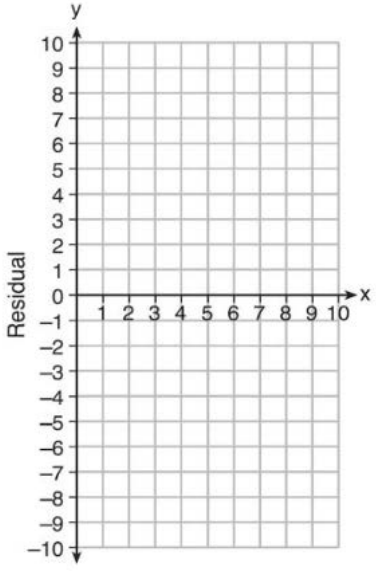
8. The perimeter of a regular pentagon is no more them 52 cm. The length of the side of the pentagon is represented by $x+4$. Find all values that could represent x. Write your answer in interval notation.

9. Use the data below to write the regression equation $(y=mx+b)$ for the raw test scores based on the hours tutored. Round all values to the *nearest hundredth*

Tutor Hours, x	Raw Test Score	Residual (Actual – Predicted)
1	30	1.3
2	37	1.9
3	35	–6.4
4	47	–0.7
5	56	2.0
6	67	6.6
7	62	–4.7

Equation: _____

Create a residual plot on the axes below, using the residual scores in the table to the left.



Based on the residual plot, state whether the equation is a good fit for the data. Justify your answer.