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**Regents Review Problem Set 1**

1. The cost of creating a commercial for television is modeled by the function $N\left(x\right)=110x+900$, where $x$ is the number of times the commercial is aired. Based on this model, which statement is true?

(1) The commercial costs $0 to produce and $110 per airing up to $900.

(2) The commercial costs $110 to produce and $900 each time it is aired.

(3) The commercial costs $900 to produce and $110 each time it is aired.

(4) The commercial costs $1010 to produce and can air an unlimited number of times.

**Work/Explanation:**

2. The graph below represents a jogger’s speed during his 20-minute jog around his neighborhood.



Which statement best describes what the jogger was doing during the 14-16 minute interval?

(1) He was jogging at a constant rate.

(2) He was decreasing his speed.

(3) He was increasing his speed.

(4) He was standing still.

**Work/Explanation:**

3. Four expressions are shown below. **Work:**



The expression $4x^{2}-4x-120$ is equivalent to

(1) I and II, only

(2) II and IV, only

(3) II, III, and IV

(4) I, II, and IV

4. Last week, a toy store received $355.60 for selling 20 stuffed animals. Small stuffed animals sell for $10.98 and large stuffed animals sell for $27.98. How many large stuffed animals did the store sell?

(1) 12 **Work:**

(2) 10

(3) 8

(4) 6



5.

6. **Sketch of the graph:**

7. What is the domain of the following relation?

**{(4,2), (1,1), (0,0), (1,-1), (4,-2)}**

(1) {0, 1, 4}

(2) {-2, -1, 0, 1, 2}

(3) {-2, -1, 0, 1, 2, 4}

(4) {-2, -1, 0, 0, 1, 1, 1, 2, 4, 4}

**Explanation of answer choice:**

8. The following set of numbers is given:

 $a=\sqrt{20}$ $b=2.5$ $c=\sqrt{225}$

Explain below why *a + b* is irrational, but *b + c* is rational.

9. Write the expression $5x+4x^{2}\left(2x+7\right)-6x^{2}-9x$ as a polynomial in **standard form**.

10. Solve the following system of inequalities graphically below and **label the solution S.**

$$3x+4y>20$$

$$x<3y-18$$



Is the point (3,7) in the solution set? Explain your answer below:

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