Name. _____ Period _____ Date _____

Systems of Equations Open Response Questions

Answer all questions in complete sentences, using proper mathematical language.

1. A student was asked to solve the following system of equations, and the work is below.

$$\begin{cases} 3x - 4y = 20 \\ y = \frac{3}{4}x + 1 \end{cases}$$

$3x - 4\left(\frac{3}{4}x + 1\right) = 20$

$3x - 3x - 4 = 20$

$-4 = 20$

No Solution

Why did the student say there was no solution? Mathematically explain what it means for a system of equations to have no solution. What does this tell us about the two lines? Provide evidence that there is no solution.

2. Anabelle was so psyched to learn that she could solve systems of equations by combining equations! She tried to solve the following system below but couldn't.

$$\begin{cases} 5x - 2y = -10 \\ 3x + 6y = 66 \end{cases}$$

$$8x + 4y = 56$$
$$-4y \quad -4y$$
$$8x = 56 - 4y$$

What does Anabelle not understand about combining equations to solve a system?

How should she have proceeded? (Show complete work)

$$\begin{cases} 5x - 2y = -10 \\ 3x + 6y = 66 \end{cases}$$

What did you do that Anabelle did not? Be **specific** in explaining why you chose to do what you did!