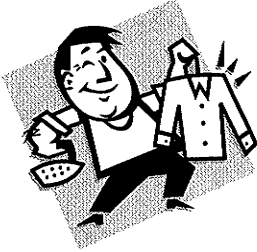


Name: Answer Key
Date: _____

Where's the Money?



Sergeant Major Carter decided to open a JROTC uniform cleaning service at West Point High School. When he started the business he had to purchase an Ironing Board for \$15 and an Iron for \$35. Also, he figured it would cost \$1.25 in cleaning products for each uniform, so he decided he was going to charge \$3.25 for cleaning and pressing one entire uniform.



1. Write a system of equations that would represent the above scenario.

Let x = the number of uniforms cleaned
Let y = the total cost

$$\begin{array}{l} y = 50 + 1.25x \\ y = 3.25x \end{array} \quad \text{or} \quad \begin{array}{l} y = 1.25x + 50 \\ y = 3.25x \end{array}$$

2. How many uniforms does the Sergeant Major have to clean in order to break even? Show your Work. If you choose to use the graphing method, please use the grid provided.

Method 1:

$$\begin{array}{r} 1.25x + 50 = 3.25x \\ -1.25x \quad -1.25x \\ \hline 50 = 2.00x \\ 2 \quad 2 \end{array}$$

$$25 = x$$

Sergeant Major Carter must clean 25 uniforms to break even.

Justification: $50 + 1.25x = 50 + 1.25 \cdot 25 = \81.25

$$3.25x = 3.25 \cdot 25 = \$81.25$$

Method 2:

Student puts the two equations in on the grid provided and determine the point of intersection to be (25, 81.25).

Method 3:

Student puts the two equations in y_1 and y_2 of the TI-83/84, then goes to the Table and scrolls until the values in y_1 and y_2 are equal. This occurs when $x = 25$. When $x = 25$, both y values are \$81.25.

3. If the Sergeant Major cleans fewer uniforms than what you determined in #3, what does it mean?

If the Sergeant Major cleans fewer than 25 uniforms, than that means he has not met the Break Even point and is still losing money on his endeavor.

4. If the Sergeant Major cleans more uniforms than what you determined in #3, what does it mean?

If the Sergeant Major cleans more than 25 uniforms, than that means he has met the Break Even point and is now making money on his endeavor.