Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Warm Up 5.1 SHOW YOUR WORK!!!**

Solve the following problems by hand, use a graphing calculator to check.

1. Choose the most efficient method (substitution, addition, graphing). DO NOT SOLVE.

a.  b.  c. 

a. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ b. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ c. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Solving using the method of your choice.



3. The **Hadal Zone**, the deepest part of the ocean (below 6,000 meters), has remained largely unexplored. However, improvements in deep-sea technology have increased the number of successful research missions to these depths.

The number of research missions conducted at depths **shallower** than the Hadal Zone (above 6,000 meters) can be modeled by:

L(x)=−5x+200 where L(x) represents the number of shallower deep-sea research missions in year x, and x is the number of years after 2000.

The number of research missions conducted in the **Hadal Zone** (deeper than 6,000 meters) can be modeled by:

H(x)=20+3x where H(x) represents the number of Hadal Zone research missions in year x.

a. Determine the year when the number of Hadal Zone research missions equaled the number of shallower deep-sea research missions. Round to the nearest year.

b. How many missions were conducted in that year?