Worksheet – *In the Navy* 　　　　　　Name_____

Comedians Bud Abbott and Lou Costello star in the 1941 movie *In the Navy.* Given the task of making thirteen donuts for each of seven officers, Lou cooks 28 donuts, claiming that 7 x 13 = 28. Lou demonstrates in three ways that 7 x 13 = 28.

Method 1: Lou multiplies 7 x 3 and gets 21. He then multiplies 7 x 1 and gets 7. Adding these two results, he gets 28.	**Method 2:** Lou divides 28 by 7 and gets 13. He states, 7 won't go into 2, so divide 7 into 8 one time. Subtract and get 21. Now divide 7 into 21.	**Method 3:** Checking by addition. Lou adds all of the 3's together, then adds all of the 1's together and gets 28.
13 　　　x7 　　　21 　　　+7 　　　28	13 7⟌28 　　　-7 　　　21 　　　-21	13 13 13 13　`(3+3+3+3+3+3+3)+` 13　`(1+1+1+1+1+1+1)=28` 13 +13 28

1. Explain why Lou's techniques are not yielding correct results. An answer such as "he multiplied wrong" is not sufficient. Be mathematically specific, please.
Method 1:

Method 2:

Method 3:

2. Find another example that would illustrate Lou's unique interpretation of mathematics.

3. *a.* Using Algebra, represent Lou's multiplication process using a two digit number multiplied by a one digit number, as shown below.

$$ab$$
$$\underline{\times d}$$

b. Now, represent the actual answer of the multiplication listed in part *a.*

c. Set these two answers equal to each other and see what happens. When will they be equal?

4. Under what conditions will Lou's mathematical techniques be true?