Name: _____   Date: _____

Section 11.2 Math Link

This worksheet will help you with the Math Link on page 401.

Can you break the code for this message from Jim? Follow the steps to find out.

10 2 2 17 / 10 2 / −2 17 / 16 17 2 19 2 ' 16

Note: Spaces separate letters and the symbol "/" separates words.

1. The letter E is the most common letter in English. Predict what number represents E. _____

2. Jim started with this code.

1 = a	2 = b	3 = c	4 = d	5 = e	6 = f	7 = g
8 = h	9 = i	10 = j	11 = k	12 = l	13 = m	14 = n
15 = o	16 = p	17 = q	18 = r	19 = s	20 = t	21 = u
22 = v	23 = w	24 = x	25 = y	26 = z		

He used an equation in the form $x + a = b$ to change the letters in the message. In this equation,
x = original number
a = what you will add to the original number
b = new number for each letter

Use the equation to check if the number you predicted represents E.
original number = 5
new number for letter = 2
$x + a = b$
5 + _____ = 2
Hint: Use a negative integer.

3. Test the equation you developed in #2 on the other numbers in the first word: 10 2 2 17.
A letter is 10.
$x + a = b$
_____ + (−3) = 10
What is x? _____   Identify this letter: _____

A letter is 17.

x + a = b

_____ + (−3) = 17

What is *x*? _____   Identify this letter: _____

Identify the first word: _____

4. Now that you have the first word, the second word is easy.

10 2 = _____

5. Decode the next word.

17 is the letter _____.

A letter is −2.

x + a = b

_____ + (−3) = −2

What is *x*? _____   Identify this letter: _____

Identify the word: _____

6. Use the steps above to decode 16 17 2 19 2 ' 16.

7. Write the entire message.