Unit 7 Lesson 7: Rewriting Quadratic Expressions in Factored Form (Part 2)

1 Sums and Products (Warm up)

Student Task Statement

1. The product of the integers 2 and -6 is -12. List all the other pairs of integers whose product is -12.

2. Of the pairs of factors you found, list all pairs that have a positive sum. Explain why they all have a positive sum.

3. Of the pairs of factors you found, list all pairs that have a negative sum. Explain why they all have a negative sum.

2 Negative Constant Terms

Student Task Statement

1. These expressions are like the ones we have seen before.

factored form	standard form
$(x + 5)(x + 6)$	
	$x^2 + 13x + 30$
$(x - 3)(x - 6)$	
	$x^2 - 11x + 18$

Each row has a pair of equivalent expressions.

Complete the table. If you get stuck, consider drawing a diagram.

2. These expressions are in some ways unlike the ones we have seen before.

factored form	standard form
$(x + 12)(x - 3)$	
	$x^2 - 9x - 36$
	$x^2 - 35x - 36$
	$x^2 + 35x - 36$

Each row has a pair of equivalent expressions.

Complete the table. If you get stuck, consider drawing a diagram.

3. Name some ways that the expressions in the second table are different from those in the first table (aside from the fact that the expressions use different numbers).

3 Factors of 100 and -100

Student Task Statement

1. Consider the expression $x^2 + bx + 100$.

   Complete the first table with all pairs of factors of 100 that would give positive values of b, and the second table with factors that would give negative values of b.

   For each pair, state the b value they produce. (Use as many rows as needed.)

   positive value of b

   negative value of b

factor 1	factor 2	b (positive)

factor 1	factor 2	b (negative)

2. Consider the expression $x^2 + bx - 100$.

Complete the first table with all pairs of factors of -100 that would result in positive values of b, the second table with factors that would result in negative values of b, and the third table with factors that would result in a zero value of b.

For each pair of factors, state the b value they produce. (Use as many rows as there are pairs of factors. You may not need all the rows.)

positive value of b

factor 1	factor 2	b (positive)

negative value of b

factor 1	factor 2	b (negative)

zero value of b

factor 1	factor 2	b (zero)

3. Write each expression in factored form:

a. $x^2 - 25x + 100$

b. $x^2 + 15x - 100$

c. $x^2 - 15x - 100$

d. $x^2 + 99x - 100$