

Name _____ Date _____

What Factored Into It?
Factoring Polynomials

1. Mr. Vanek writes the trinomial $6x^2 + 26x + 28$ on the board and asks Wanda and Cyril to factor it. Their work is shown below. Determine which student factored the trinomial correctly. Identify any mistakes that were made in either solution and correct them.

Wanda

$$6x^2 + 26x + 28 = (3x + 7)(2x + 4)$$

Cyril

$$\begin{aligned} 6x^2 + 26x + 28 &= 2(3x^2 + 13x + 14) \\ &= 2(3x + 7)(x + 2) \end{aligned}$$

2. Without factoring, determine the signs of the binomial factors of each trinomial in the table below. Explain how you determined each answer.

Trinomial	Signs of Binomial Factors	Explanation
$x^2 + 3x - 18$		
$x^2 - 9x + 18$		
$x^2 - 3x - 18$		
$x^2 + 9x + 18$		

12

3. Consider the trinomial $-2x^2 + 5x + 12$.
- Kevin claims that the binomial factors will both be positive. Is Kevin correct? Why or why not?
 - Angelica claims that she can rewrite the trinomial as $12 + 5x - 2x^2$ to determine the signs of the binomial factors. Is she correct? If so, determine the signs of the binomial factors. If not, explain why not.
 - Verify your answer to part (b) by factoring the trinomial completely. Show your work.

4. Complete the following multiplication table. Then, write the trinomial and its factors. Explain how you determined your answers.

•	x	
x		
	$-3x$	-24

5. The area of a rectangle is represented by the quadratic expression $6x^2 - x - 15$. Determine the expressions that can be used to represent the length and width of the rectangle. Then, explain how you determined your answer.