LARSON ALGEBRA 2
CHAPTER 5, LESSON 2, EXTRA EXAMPLES

Extra Example 1   Factoring Trinomials of the Form $x^2 + bx + c$

Factor $x^2 - 2x - 48$.

SOLUTION
You want $x^2 - 2x - 48 = (x + m)(x + n)$ where $m + n = -2$ and $mn = -48$. Find factors of -48. Taking $m = -8$ and $n = 6$ gives $x^2 - 2x - 48 = (x - 8)(x + 6)$.

Extra Example 2   Factoring a Trinomial of the Form $ax^2 + bx + c$

Factor $4y^2 - 4y - 3$.

SOLUTION
You want $4y^2 - 4y - 3 = (ky + m)(ly + n)$ where k and l are factors of 4 and m and n are factors of 3. Check possible factorizations by multiplying.

$(4y - 3)(y + 1) = 4y^2 + y - 3$

$(4y - 1)(y + 3) = 4y^2 + 11y - 3$

$(2y - 1)(2y + 3) = 4y^2 + 4y - 3$

$(2y - 3)(2y + 1) = 4y^2 - 4y - 3 \qquad \sqrt{}$

▶ The correct factorization is $4y^2 - 4y - 3 = (2y - 3)(2y + 1)$.

Extra Example 3   Factoring with Special Patterns

Factor the quadratic expression.

a. $16y^2 - 225$	$= (4y)^2 - (15)^2$	Difference of two squares
	$= (4y - 15)(4y + 15)$	
b. $4z^2 - 12z + 9$	$= (2z)^2 + 2(2z)(-3) + (-3)^2$	Perfect square trinomial
	$= (2z - 3)^2$	
c. $36w^2 + 60w + 25$	$= (6w)^2 + 2(6w)(5) + 5^2$	Perfect square trinomial
	$= (6w + 5)^2$	