

**GUIDED PRACTICE** for Examples 1 and 2**Factor the expression. If the expression cannot be factored, say so.**

1. $7x^2 - 20x - 3$

2. $5z^2 + 16z + 3$

3. $2w^2 + w + 3$

4. $3x^2 + 5x - 12$

5. $4u^2 + 12u + 5$

6. $4x^2 - 9x + 2$

FACTORIZING SPECIAL PRODUCTS If the values of a and c in $ax^2 + bx + c$ are perfect squares, check to see whether you can use one of the special factoring patterns from Lesson 4.3 to factor the expression.**EXAMPLE 3** Factor with special patterns**Factor the expression.**

$$\begin{aligned} \text{a. } 9x^2 - 64 &= (3x)^2 - 8^2 \\ &= (3x + 8)(3x - 8) \end{aligned}$$

Difference of two squares

$$\begin{aligned} \text{b. } 4y^2 + 20y + 25 &= (2y)^2 + 2(2y)(5) + 5^2 \\ &= (2y + 5)^2 \end{aligned}$$

Perfect square trinomial

$$\begin{aligned} \text{c. } 36w^2 - 12w + 1 &= (6w)^2 - 2(6w)(1) + 1^2 \\ &= (6w - 1)^2 \end{aligned}$$

Perfect square trinomial

**GUIDED PRACTICE** for Example 3**Factor the expression.**

7. $16x^2 - 1$

8. $9y^2 + 12y + 4$

9. $4r^2 - 28r + 49$

10. $25s^2 - 80s + 64$

11. $49z^2 + 42z + 9$

12. $36n^2 - 9$

FACTORIZING OUT MONOMIALS When factoring an expression, first check to see whether the terms have a common monomial factor.**EXAMPLE 4** Factor out monomials first**Factor the expression.**

$$\begin{aligned} \text{a. } 5x^2 - 45 &= 5(x^2 - 9) \\ &= 5(x + 3)(x - 3) \end{aligned}$$

$$\begin{aligned} \text{b. } 6q^2 - 14q + 8 &= 2(3q^2 - 7q + 4) \\ &= 2(3q - 4)(q - 1) \end{aligned}$$

c. $-5z^2 + 20z = -5z(z - 4)$

d. $12p^2 - 21p + 3 = 3(4p^2 - 7p + 1)$

AVOID ERRORS

Be sure to factor out the common monomial from all of the terms of the expression, not just the first term.

**GUIDED PRACTICE** for Example 4**Factor the expression.**

13. $3s^2 - 24$

14. $8t^2 + 38t - 10$

15. $6x^2 + 24x + 15$

16. $12x^2 - 28x - 24$

17. $-16n^2 + 12n$

18. $6z^2 + 33z + 36$