

LESSON
8.7**Challenge Practice***For use with the lesson "Factor Special Products"***In Exercises 1–3, factor the expression.**

1. $x^2 - 6xy + 9y^2$
2. $4x^2 - 20xy + 25y^2$
3. $25x^2y^2 + 40xy + 16$

In Exercises 4 and 5, use the substitution method to factor the expression.**Example:** $16(y + 3)^2 - 40(y + 3) + 25$ **Solution:** Let $x = y + 3$. Then the expression $16(y + 3)^2 - 40(y + 3) + 25$ becomes $16x^2 - 40x + 25$. Now factor this expression.

$$16x^2 - 40x + 25 = (4x - 5)^2$$

Finally, replace x with $(y + 3)$.

$$(4x - 5)^2 = [4(y + 3) - 5]^2 = (4y + 7)^2$$

4. $4(x - 7)^2 - 24(x - 7) + 36$
5. $25(x + 3)^2 - 20(x + 3) + 4$

In Exercises 6–10, use substitution to factor, then solve for x .

6. $(x - 5)^4 - 10(x - 5)^2 + 25 = 0$
7. $4(2x - 7)^6 - 28(2x - 7)^3 + 49 = 0$
8. $25(x + 2)^2 + 30(x + 2) + 9 = 0$
9. $\frac{16}{x^2} + \frac{56}{x} + 49 = 0$
10. $\frac{9}{(x + 1)^2} + \frac{12}{x + 1} + 4 = 0$