Algebra 1
Chap. 8 section 5
Tutorial practice

Name: _____
Date: _____
Period: _____

8-5 EXERCISES

# Chapter 8
## Factoring Polynomials

Homework Help Online

**Online Support for Lesson 8-5 Homework**

## GUIDED PRACTICE

Click a video icon to see a Lesson Tutorial Video. Click a pencil icon to practice similar problems.

VIDEO

PRACTICE

**See Example 1**

**Determine whether each trinomial is a perfect square. If so, factor. If not, explain.**

1. $x^2 - 4x + 4$
2. $x^2 - 4x - 4$
3. $9x^2 - 12x + 4$
4. $x^2 + 2x + 1$
5. $x^2 - 6x + 9$
6. $x^2 - 6x - 9$

VIDEO

PRACTICE

**See Example 2**

7. **City Planning** A city purchases a rectangular plot of land with an area of $(x^2 + 24x + 144)$ yd$^2$ for a park. The dimensions of the plot are of the form $ax + b$, where $a$ and $b$ are whole numbers. Find an expression for the perimeter of the park. Find the perimeter when $x = 10$ yd.

VIDEO

PRACTICE

**See Example 3**

**Determine whether each binomial is a difference of two squares. If so, factor. If not, explain.**

**8.** $1 - 4x^2$ **9.** $s^2 - 4^2$ **10.** $81x^2 - 1$

**11.** $4x^4 - 9y^2$ **12.** $x^8 - 50$ **13.** $x^6 - 9$

## PRACTICE AND PROBLEM SOLVING

Click a video icon to see a Lesson Tutorial Video. Click a lightbulb icon to see a complete solution.

VIDEO

**Determine whether the trinomial is a perfect square. If so, factor. If not, explain.**

**14.** $4x^2 - 4x + 1$ **15.** $4x^2 - 4x - 1$ **16.** $36x^2 - 12x + 1$

**17.** $25x^2 + 10x + 4$ **18.** $9x^2 + 18x + 9$ **19.** $16x^2 - 40x + 25$


VIDEO

**20. Measurement** You are given a sheet of paper and told to cut out a rectangular piece with an area of $(4x^2 - 44x + 121)$ mm$^2$. The dimensions of the rectangle have the form $ax - b$, where $a$ and $b$ are whole numbers. Find an expression for the perimeter of the rectangle you cut out. Find the perimeter when $x = 41$ mm.


VIDEO

**Determine whether each binomial is a difference of two squares. If so, factor. If not, explain.**

**21.** $1^2 - 4x^2$

**22.** $25m^2 - 16n^2$

**23.** $4x - 9y$

**24.** $49p^{12} - 9q^6$

**25.** $9^2 - 100x^4$

**26.** $x^3 - y^3$


SOLUTION

**Find the missing term in each perfect-square trinomial.**

**29.** $\square - 36y + 81$

SOLUTION

**Factor each polynomial using the rule for perfect-square trinomials or the rule for a difference of two squares. Tell which rule you used.**

**31.** $100x^2 - 81y^2$

SOLUTION

**33.** $4r^6 - 25s^6$

SOLUTION

**35.** $x^{14} - 144$

SOLUTION

**39.** For what value of $c$ are the factors of $x^2 + cx + 256$ the same?

SOLUTION

**41. Multi-Step** The area of a square is represented by $25z^2 - 40z + 16$.

**a.** What expression represents the length of a side of the square?

**b.** What expression represents the perimeter of the square?

**c.** What are the length of a side, the perimeter, and the area of the square when $z = 3$?

SOLUTION

**43.** Evaluate each expression for the values of $x$.

| | $x$ | $x^2 + 10x + 25$ | $(x + 5)^2$ | $(x - 5)^2$ | $x^2 - 10x + 25$ | $x^2 - 25$ |
|---|---|---|---|---|---|---|
| a. | $-5$ | | | | | |
| b. | $-1$ | | | | | |
| c. | 0 | | | | | |
| d. | 1 | | | | | |
| e. | 5 | | | | | |