

Name \_\_\_\_\_

Instructor \_\_\_\_\_

Date \_\_\_\_\_

**SHOW YOUR WORK!**

The skills needed to complete this worksheet are required for our work in Chapter 5. Please seek help as soon as possible if you have difficulty completing any of these sections.

**Learning Objectives**

- A. Write a fraction in simplest form.
- B. Use the quotient rule for exponents.
- C. Factor polynomials.
- D. Multiply fractions and divide fractions.

**OBJECTIVE A: Write a fraction in simplest form.** (See Examples 8–10, page R-11)

Simplify each fraction.

1.  $-\frac{14}{98}$

2.  $\frac{18}{72}$

3.  $\frac{-36}{42}$

4.  $\frac{9}{27}$

5.  $\frac{15x}{75}$

6.  $\frac{24x}{60xy}$

**OBJECTIVE B: Use the quotient rule for exponents.** (See Section 3.1, Examples 24–27, page 185)

Simplify each expression.

7.  $\frac{-7a^2b^3}{ab^2}$

8.  $\frac{x^{12}y^5}{x^8y^4}$

9.  $\frac{4x^2y}{8x^3y}$

10.  $\frac{8a^3b^8c^3}{18ab^5c^2}$

**Objective C: Factor polynomials.** (See Examples 4–6, page 258, Examples 1–3, page 266, and Examples 9–10, page 285)

Factor each expression.

11.  $56z + 8$

12.  $4y^2 - 2y$

13.  $x^2 - 4x - 21$

14.  $x^2 - 13x + 30$

15.  $x^2 - 25$

16.  $4a^2 - 9$

**OBJECTIVE D: Multiply and Divide Fractions.** (See Examples 11–14, pages R-12–R-13)

Multiply or divide. Write the answer in simplest form.

17.  $\frac{-3}{5} \cdot \frac{5}{6}$

18.  $\frac{17}{21} \cdot \frac{7}{8}$

19.  $\frac{5x}{11} \cdot \frac{22}{25x}$

20.  $\frac{4}{5} \div \frac{16}{15}$

21.  $-\frac{21}{36} \div -\frac{7}{8}$

22.  $\frac{3}{5} \div \frac{3}{4x}$