

# Simplifying Complex Fractions

Intermediate Algebra

NAME \_\_\_\_\_

A. Simplify each fraction by both methods:

Method I

Method II

1. 
$$\frac{1 + \frac{1}{x} - \frac{12}{x^2}}{1 + \frac{2}{x} - \frac{8}{x^2}}$$

I. \_\_\_\_\_

II. \_\_\_\_\_

2. 
$$\frac{\frac{x+2}{x-2} + \frac{x-2}{x+2}}{\frac{x+2}{x-2} - \frac{x-2}{x+2}}$$

I. \_\_\_\_\_

II. \_\_\_\_\_

**B. Simplify by using either method.**

3. 
$$\frac{1 - \frac{8}{x^3}}{1 - \frac{2}{x}}$$

4. 
$$\frac{x^{-2} - 1}{1 - x^{-1}}$$

5. 
$$\frac{\frac{2}{x^2 - 1} + \frac{1}{x}}{\frac{1}{x - 1} + \frac{2}{x(x - 1)}}$$

3. \_\_\_\_\_

4. \_\_\_\_\_

5. \_\_\_\_\_

## Complex Fractions

Intermediate Algebra

Name \_\_\_\_\_

**Simplify each complex fraction:**

1. 
$$\frac{1 + \frac{1}{x^3}}{1 + \frac{1}{x}}$$

2. 
$$\frac{1 + \frac{2}{x} - \frac{3}{x^2}}{1 + \frac{5}{x} + \frac{6}{x^2}}$$

1. \_\_\_\_\_

2. \_\_\_\_\_

3. 
$$\frac{x + \frac{8}{x+6}}{x+1 + \frac{6}{x+6}}$$

4. 
$$\frac{x-1 - \frac{4}{3x-2}}{x - \frac{1}{3x-2}}$$

3. \_\_\_\_\_

4. \_\_\_\_\_

5. 
$$\frac{x+9 + \frac{42}{x-4}}{x+8 + \frac{35}{x-4}}$$

6. 
$$\frac{\frac{x+2}{x-2} + \frac{x-2}{x+2}}{\frac{x+2}{x-2} - \frac{x-2}{x+2}}$$

5. \_\_\_\_\_

6. \_\_\_\_\_

$$7. \frac{\frac{2x-1}{2x+1} - \frac{2x+1}{2x-1}}{\frac{2x-1}{2x+1} + \frac{2x+1}{2x-1}}$$

$$8. \frac{x - \frac{6}{x+1}}{x+2 - \frac{4}{x-1}}$$

7. \_\_\_\_\_

8. \_\_\_\_\_

$$9. \frac{x - \frac{8}{x+2}}{x+5 + \frac{7}{x-3}}$$

$$10. \frac{2(m-1)^{-1} - (m+1)^{-1}}{(m-1)^{-1} + (m+1)^{-1}}$$

9. \_\_\_\_\_

10. \_\_\_\_\_