

Unit 1 : Algebra Skills

Topic: Simplifying Complex Fractions

Objective: *SWBAT simplify complex fractions by using their knowledge of algebra.*

Simplifying Complex Rational Expressions:

A *complex rational expression* contains one or more fractions in the numerator, denominator, or both.

1. **Eliminate** the fractions in both the numerator & denominator by using the LCD
2. **Factor** the remaining expressions in the numerator & denominator.
3. **Simplify** by canceling out any common terms.

Example #1:

$$\frac{\frac{x+2}{2x}}{\frac{x^2-4}{4x^2}}$$

Example #2:

$$\frac{1-\frac{3}{x}}{\frac{9}{x^2}-1}$$

Problem Set #5: Simplify each of the following complex fractions.

$$1. \frac{\left[\frac{x^2}{(x+1)^2} \right]}{\left[\frac{x}{(x+1)^3} \right]}$$

$$2. \frac{\left(\frac{x^2-1}{x} \right)}{\left(\frac{(x-1)^2}{x} \right)}$$

$$3. \frac{(x-4)}{\left(\frac{x}{4} - \frac{4}{x} \right)}$$

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

$$5. \frac{\frac{x}{3} - \frac{3}{x}}{\frac{x-3}{x}}$$

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

$$7. \frac{\frac{24}{x^2 - 9}}{\frac{36}{x - 3}}$$

$$8. \frac{\frac{x^2}{5} - 5}{\frac{x}{5} - 1}$$

$$9. \frac{\frac{x^2 - 4x + 3}{x^2 - 9}}{\frac{9 - x^2}{x^2 + 6x + 9}}$$

$$10. \frac{\frac{x^2}{16} - 1}{\frac{x}{8} - \frac{1}{2}}$$



Assignment(s): Finish problems #1-10
Weekly Review #1

