

Lesson 7.5_{SU'09}

Objective: To simplify complex fractions.

Complex fraction-is a rational expressions that contains rational expressions in the numerator and/or the denominator.

Simplify: Method 1

$$1. \frac{\frac{2}{3}}{\frac{3}{2}} = \frac{2}{3} \div \frac{3}{2}$$

Method 2

$$1. \frac{\frac{2}{3} \cdot 6}{\frac{3}{2} \cdot 6}$$

To simplify a complex rational expression, use one of the following methods:

Method 1

1. Simplify the numerator and denominator if needed.
2. Rewrite as a horizontal division problem.

Method 2

1. Multiply the numerator and denominator of the complex rational expression by their LCD.
2. Simplify.

Simplify each of the following:

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

$$2. \frac{4 + \frac{1}{x}}{3 + \frac{5}{x}}$$

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

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

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

6. Suppose three resistors R_1, R_2, R_3 are wired in parallel. The resistance of the circuit is found using the complex

rational expression $\frac{1}{\frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}}$.

a) Simplify this complex rational expression.

b) A 20-ohm, a 10-ohm, and a 40-ohm resistor are wired in parallel. Find the resistance of the circuit.

Class work Worksheet section 7.4 -7.5

Homework Math XL section 7.5

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