

Section 6.4: Complex Fractions

Objectives:

- * Simplify complex fractions using rules for dividing rational expressions.
- * Simplify complex fractions having a sum or difference in the numerator and/or denominator.

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

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

$$\frac{4 + \frac{-16}{x-4}}{5 + \frac{20}{x-4}}$$

Simplify these:

$$\text{a) } \frac{\left(\frac{3u^2}{6v^3}\right)}{\left(\frac{u}{3v}\right)}$$

$$\text{b) } \frac{\left(\frac{x}{x-4}\right)}{\left(\frac{x}{4-x}\right)}$$

$$\text{c) } \frac{\left(\frac{x^2 - 2x - 8}{x - 1}\right)}{5x - 20}$$

$$\text{d) } \frac{\left(\frac{6x^2 - 13x - 5}{5x^2 + 5x}\right)}{\left(\frac{2x - 5}{5x + 1}\right)}$$

$$\text{e) } \frac{\left(16 - \frac{1}{x^2}\right)}{\left(\frac{1}{4x^2} - 4\right)}$$

$$\text{f) } \frac{\left(\frac{x+1}{x+2} - \frac{1}{x}\right)}{\left(\frac{2}{x+2}\right)}$$

$$g) \frac{3x^{-2} - x}{4x^{-1} + 6x}$$

$$h) \frac{x - y}{x^{-2} - y^{-2}}$$