

8.5 LT Quiz #3 - Adding/Subtracting Rational Expressions & Complex Fractions

Simplify the complex fraction. State any restrictions on domain. (4 points each)

$$1. \frac{\left(2 - \frac{2}{x}\right)x}{\left(3 - \frac{1}{x}\right)x}$$

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

Solution: $\frac{2x-2}{3x-1}$

#: ~~0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0~~

$$2. \frac{\frac{x^2+3x+2}{x^2-4}}{\frac{x^2+8x+16}{2x-4}}$$

$$\frac{(x+2)(x+1)}{(x-2)(x+2)} \cdot \frac{2(x-2)}{(x+4)(x+4)}$$

Solution: $\frac{2(x+1)}{(x+4)(x+4)}$

#: 2, -2, -4

Simplify each rational expression. State any restrictions on domain. (4 points each)

$$3. \frac{\frac{x^2-1}{x^2+2x-3} - \frac{2(x-1)}{x+3(x-1)}}{(x+3)(x-1)}$$

$$\frac{x^2-1}{(x+3)(x-1)} - \frac{2(x-1)}{(x+3)(x-1)}$$

$$\frac{x^2-1-2x+2}{(x+3)(x-1)} = \frac{x^2-2x+1}{(x+3)(x-1)}$$

Solution: $\frac{x-1}{x+3}$

#: -3, 1

$$4. \frac{\frac{2}{x^2-9} + \frac{1(x-3)}{x+3} - \frac{3(x+3)}{x-3(x+3)}}{(x-3)(x+3)}$$

$$\frac{2}{(x-3)(x+3)} + \frac{1(x-3)}{(x-3)(x+3)} - \frac{3(x+3)}{(x-3)(x+3)}$$

$$\frac{2+x-3-3x-9}{(x-3)(x+3)}$$

$$= \frac{(x-1)(x-1)}{(x+3)(x-1)} \quad \text{Solution: } \frac{-2x-10}{(x-3)(x+3)}$$

#: 3, -3