

Name: \_\_\_\_\_  
PCH: Complex Rational Expressions Homework

Date: \_\_\_\_\_  
Ms. Loughran

Simplify each of the following.

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

$$2. \frac{\frac{4x}{y} + \frac{y^2}{2x^2}}{\frac{1}{y^2} + (2xy)^{-1}}$$

$$3. \frac{\frac{4}{x+2} + \frac{2}{x-4}}{\frac{12x-4}{2x^2-4x-16}}$$

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

$$5. \frac{x^{-2} - 6x^{-1} + 9}{x^2 - 9}$$

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

$$7. \frac{1}{ay - 3a + 2xy - 6x} - \frac{xy + ay}{a^2 - 4x^2} \left( \frac{1}{y - 3} \right)^2$$

$$8. \frac{\frac{7 - (x + h)}{4 + (x + h)} - \frac{7 - x}{4 + x}}{h}$$