

Name: \_\_\_\_\_

### Rational Functions Review

Simplify each of the following.

$$1. \frac{x+6}{9x} \div \frac{x^2+10x+24}{2x+8} = \frac{2}{9x}$$

$$2. \frac{10p^2}{7p} \cdot \frac{30p^2-12p}{50p^3-20p^2} = \frac{6}{7}$$

$$3. \frac{x^2+9x+8}{8x^2+8x} \div \frac{x^2+2x-48}{4x^2-24x} = \frac{1}{2}$$

$$4. \frac{3}{6x^2+12x} - \frac{4}{2x} = \frac{-(4x+7)}{2x(x+2)}$$

$$5. \frac{6}{p-3} - \frac{2p}{p+3} = \frac{-2p^2+12p+18}{(p+3)(p-3)}$$

$$6. \frac{2}{r-4} - \frac{2r}{r^2-r-12} = \frac{6}{(r-4)(r+3)}$$

Solve each of the following.

$$7. \frac{2}{k+6} + \frac{1}{k^2+7k+6} = \frac{3k-15}{k^2+7k+6} \quad k=18$$

$$8. \frac{5r+15}{2r} = \frac{r+4}{r} - 1 \quad r=-7/5$$

$$9. \frac{1}{x+2} > \frac{3}{x+1} \quad (-\infty, -5/2) \cup (-2, -1)$$

$$10. \frac{x(x^2+1)(x-2)}{(x-1)(x+1)} \geq 0 \quad (-\infty, -1) \cup [0, 1) \cup [2, \infty)$$