

Section 1-6 : Rational Expressions

For problems 1 – 3 reduce each of the following to lowest terms.

$$1. \frac{x^2 - 6x - 7}{x^2 - 10x + 21}$$

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

$$3. \frac{2x^2 - x - 28}{20 - x - x^2}$$

For problems 4 – 7 perform the indicated operation and reduce the answer to lowest terms.

$$4. \frac{x^2 + 5x - 24}{x^2 + 6x + 8} \cdot \frac{x^2 + 4x + 4}{x^2 - 3x}$$

$$5. \frac{x^2 - 49}{2x^2 - 3x - 5} \div \frac{x^2 - x - 42}{x^2 + 7x + 6}$$

$$6. \frac{x^2 - 2x - 8}{2x^2 - 8x - 24} \div \frac{x^2 - 9x + 20}{x^2 - 11x + 30}$$

$$7. \frac{\frac{3}{x+1}}{\frac{x+4}{x^2 + 11x + 10}}$$

For problems 8 – 12 perform the indicated operations.

$$8. \frac{3}{x-4} + \frac{x}{2x+7}$$

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

$$10. \frac{x}{x^2 + 12x + 36} - \frac{x-8}{x+6}$$

$$11. \frac{1}{x^2 - 13x + 42} + \frac{x+1}{x-6} - \frac{x^2}{x-7}$$

$$12. \frac{x+10}{(3x+8)^3} + \frac{x}{(3x+8)^2}$$