

DIRECTIONS: Simplify.

$$1. \frac{3}{x-5} - \frac{6x}{x^2-25} - \frac{3}{x+5}$$

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

$$3. \frac{3}{4m^2n^2} + \frac{7}{8mn^5} - \frac{6n^3 + 7m}{8m^2n^5}$$

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

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

DIRECTIONS: Solve. Check for extraneous roots.

$$6. x + \frac{6}{x} = 5$$

$$x = 2, 3$$

$$7. \frac{2}{x-1} = \frac{3}{x+1}$$

$$x = 5$$

$$8. \frac{3}{y-2} - \frac{2y}{y^2-4} = \frac{5}{y+2}$$
$$y = 4$$

$$9. \frac{2x-1}{15} \leq \frac{5}{3}$$
$$x \leq 13$$

DIRECTIONS: Solve. Be sure to label your answers.

10. Deanna can paint the outside of a house in 12 hours. Benito can paint the same house in 15 hours. How long would it take them working together to paint the house?

$6\frac{2}{3}$  hours or 6 hours 40 minutes

11. If one half of a number is 10 less than two thirds of the number, what is the number?

60

12. Dr. Bunsen Honeydew wants to obtain 400 mL of a 5% solution of acetic acid by mixing 2% and 10% solutions of acetic acid. How much of each solution should be used?

250 mL of 2% solution and 150 mL of 10% solution