

Chapter 8 Review #2

Do your work on a separate sheet of paper.

Solve and check for extraneous solutions:

$$1. \frac{2}{x} = \frac{x}{x^2 - 8}$$

$$2. \frac{3}{x-2} = \frac{4}{x-3} - \frac{6}{x^2 - 5x + 6}$$

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

$$11. \frac{x^2 + 2x - 3}{x+2} \cdot \frac{x^2 + 2x}{x^2 - 1}$$

$$12. \frac{x^2}{x^2 - 1} \div \frac{3x}{x+1}$$

$$13. \frac{7x^2 - 21x}{x^2 - 2x - 35} \div \frac{x^2}{x-7}$$

Perform the indicated operation, as appropriate, and/or simplify completely.

$$4. \frac{10 - 15x}{27x^3 - 8}$$

$$5. \frac{8}{x-4} - \frac{2x}{x-4}$$

$$6. \frac{8x^3 - 125}{4x^2 - 25} \div \frac{4x^2 + 10x + 25}{4x^2 + 10x}$$

$$7. \frac{\frac{1}{x} + 2x}{5 + \frac{2}{3x}}$$

$$8. \frac{\frac{8}{x+1}}{\frac{1}{3} + \frac{4}{x+1}}$$

$$9. \frac{6x+6}{x-1} \div \frac{18}{2-2x}$$

$$10. \frac{3x^2 - 5x - 2}{x^2 - 4}$$

$$14. \frac{2x}{x+4} + \frac{8}{x+4}$$

$$15. \frac{x+1}{x} + \frac{3}{2x}$$

$$16. \frac{x-1}{x-2} - \frac{x-4}{x+1}$$

$$17. \frac{2x+1}{x^2 + 4x + 4} - \frac{6x}{x^2 - 4} + \frac{3}{x-2}$$

18. The local gym charges \$140 to join the gym and then \$35 per month. Write an equation to model the average cost per month. In how many months will the average cost drop below \$40?