

Name \_\_\_\_\_ Date \_\_\_\_\_ Period \_\_\_\_\_

Simplify each of the following rational expressions.

1.  $\frac{21x^3}{3x}$

2.  $\frac{6}{3-x} \cdot \frac{x^2-9}{12x+18}$

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

4.  $\frac{x-5}{x+7} - 3$

5.  $\frac{9x^2-4}{2y^2-2y} \div \frac{3x^2+7x-6}{y^2-1}$

6.  $\frac{x^2+2x-35}{7x^2+47x-14} \cdot \frac{14x-4}{x^2-5x}$

7.  $\frac{12st-4s}{9t-3}$

8.  $\frac{8}{x-1} - \frac{3}{x+5}$

$$9. \frac{5xy^3}{2x^2-8} \div \frac{15x^2y}{(x-2)^2}$$

$$10. \frac{3x}{x+9} + \frac{27}{9-x}$$

$$11. \frac{6x}{x-3} - \frac{6}{x-3}$$

$$12. \frac{16x}{4x+4} \cdot \frac{x^2+6x+5}{x^2+5x}$$

$$13. \frac{x^2+4x-5}{x^2+2x-15} \div \frac{x^2-x}{x-1}$$

$$14. \frac{8x^3-1}{12x^2+6x+3}$$

$$15. \frac{x}{x+3} - \frac{x+5}{x^2+8x+15}$$

$$16. \frac{3x}{x-5} - \frac{8}{4x+1}$$

$$17. \frac{x^2+5x-7}{x^2+x-12} - \frac{3x-2}{x+4}$$

$$18. \frac{x-4}{x^2-7x+12}$$

$$19. \frac{3}{8-x} - \frac{x}{x^2-64}$$

$$20. \frac{x^2-2x-8}{x^2+x-20} \cdot \frac{3x^2-3x}{x^2+x-2}$$

$$21. \frac{4x^2-25}{8x^3-125}$$

$$22. \frac{6x}{2x^2+2x} + \frac{4}{1-x}$$

$$23. \frac{2x^3-32x}{2x^2-8x}$$

$$24. \frac{x+2}{x^2+4x+3} + \frac{3}{x^2-1}$$

$$25. \frac{20x-15}{x^2-3x-18} \div \frac{16x^2-25}{4x^2+17x+15}$$