

Name _____ Date _____ Period _____

Simplify each fraction.

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

2. $\frac{3x(x+6)}{4(x-2)} \cdot \frac{(x-2)}{3(2x+5)}$

3. $\frac{x^2(x+1)}{4(x-5)} \div \frac{5x}{4x-5}$

Simplify each rational expression. Hint: FACTOR!!

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

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

6. $\frac{x^2-4x-5}{x+1}$

7. $\frac{x-1}{1-x}$

8. $\frac{2x+7}{4x^2-49}$

9. $\frac{x^2+16x+63}{x^2+3x-54}$

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

11. $\frac{4x^2-2x+1}{8x^3+1}$

Perform the indicated operation.

$$12. \frac{8x^2}{9y} \cdot \frac{3y^2}{2x^5}$$

$$13. \frac{-4x^3}{y^4} \div \frac{-2}{x^2y^4}$$

$$14. \frac{6y^2}{5x^2} \div \frac{3y^2}{4x^6}$$

$$15. \frac{x+5}{x-6} \cdot \frac{2x-12}{x^2-25}$$

$$16. \frac{-x^2-5x+14}{3x^3-6x^2} \cdot \frac{2x^2+6x}{x^2+10x+21}$$

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

$$18. \frac{x^2-2x-24}{4x^2+13x-12} \cdot \frac{8x-6}{x^2-6x}$$

$$19. \frac{x^2+3x+2}{3x-18} \div \frac{x^2-1}{x^2-x-30}$$

$$20. \frac{x^3-64}{x^3+64} \div \frac{x^2-16}{x^2-4x+16}$$

$$21. \frac{2x^2+3x}{x^2-16} \cdot \frac{25x^2-9}{4x^2+12x+9} \div \frac{25x+15}{2x^2+11x+12}$$

Perform the following operations. **No calculators!**

$$22. \frac{5}{9} + \frac{10}{9}$$

$$23. \frac{9}{4} + \frac{5}{6}$$

$$24. \frac{3}{8} - \frac{11}{10}$$

$$25. \frac{8}{x} + \frac{5}{4}$$

$$26. \frac{7}{2x} - \frac{9}{2}$$

$$27. \frac{8}{3} + \frac{5}{2x}$$

Simplify.

$$28. \frac{6 \pm \sqrt{8}}{4}$$

$$29. \frac{3 \pm \sqrt{-9}}{6}$$

$$30. \frac{5 \pm \sqrt{32}}{10}$$