Name: _____ **Class:** _____ **Date:** _____ **ID: A**

Rational Multiplication and Division Skills Practice

Perform the indicated operation. Simplify the answer when possible.

1. $\frac{2}{21} \cdot \frac{3}{4}$

2. $\frac{27}{32} \cdot \frac{1}{8} \cdot \frac{16}{9}$

3. $\frac{8}{9} \div \frac{2}{3}$

4. $\frac{4}{21} \div \frac{12}{49}$

5. $\frac{15}{22} \cdot \frac{8}{15}$

6. $\frac{1}{8} \div \frac{7}{4} \div \frac{1}{14}$

Multiply each expression. Describe any restriction(s) for the variables and simplify the answer.

7. $\frac{5x^2}{7} \cdot \frac{14}{3x}$

8. $\frac{2ab^2}{5c^3} \cdot \frac{15c}{4a}$

9. $\frac{3mn^2}{10} \cdot \frac{m^2}{8n} \cdot \frac{20}{3n^2}$

10. $\frac{x+1}{x} \cdot \frac{x^2}{2x+2}$

11. $\frac{x^2-4}{x+5} \cdot \frac{x+5}{x-2}$

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

13. $\frac{x^2-4x}{x-2} \cdot \frac{2-x}{x}$

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

15. $\frac{x+3}{x-5} \cdot \frac{1}{x^2+6x+9} \cdot (x^2-25)$

16. $\frac{5x^2}{x+4} \cdot \frac{3x^2+12x}{7x-7} \cdot \frac{x^2-2x+1}{3}$

Determine the quotient of each expression. Describe any restriction(s) for the variables and simplify the answer when possible.

17. $\frac{3c^2}{5ab} \div \frac{9}{2a}$

18. $\frac{4x^2y}{5z^4} \div \frac{2x}{z} \div \frac{1}{2z}$

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

20. $\frac{x^2+6x-27}{x^2} \div \frac{x^2-3x}{9}$

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

22. $\frac{x^2-9}{x+3} \div (x-3)$

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

24. $\frac{x^2+4x+3}{2x^2-11x+5} \div \frac{x^2+3x}{2x-1}$

25. $\frac{x^2-121}{x^2+x-20} \div \frac{x^2-10x+1}{x^2-25}$

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