Multiplying and Dividing Rational Expressions HW

Name: _____
Date: _____

Simplify the rational expression, if possible.

1. $\frac{4x^2}{40x^2 - 12x}$	**2.** $\frac{x^2 + 2x - 24}{x^2 + 7x + 6}$	**3.** $\frac{x^2 + 4x + 4}{x^2 - 5x + 4}$
4. $\frac{x - 8}{x^2 - 64}$	**5.** $\frac{3x^3 + 6x^2 + 12x}{x^3 - 8}$	**6.** $\frac{5x^2 + 18x - 8}{10x^2 + x - 2}$

***Describe* and correct the error in simplifying the rational expression.**

7. $\frac{x^2 + 16x - 80}{x^2 - 16} = \frac{16x - 80}{-16} = -x + 5$

8. $\frac{x^2 + 16x + 48}{x^2 + 8x + 16} = \frac{x^2 + 2x + 3}{x^2 + x + 1}$

Multiply the expressions. Simplify the result.

9. $\frac{5x^3y}{x^2y^2} \cdot \frac{y^3}{15x^2}$	**10.** $\frac{x(x-3)}{x-2} \cdot \frac{(x+3)(x-2)}{x}$	**11.** $\frac{3x - 12}{x + 5} \cdot \frac{x + 6}{2x - 8}$

12. $\frac{x^2+3x-4}{x^2+4x+4} \cdot \frac{2x^2+4x}{x^2-4x+3}$

13. $\frac{x^2+5x-36}{x^2-49} \cdot (x^2-11x+28)$

Divide the expressions. Simplify the result.

14. $\frac{5x^2y^3}{x^7} \div \frac{30xy^4}{y^3}$

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

16. $\frac{x^2-6x-27}{2x^2+2x} \div \frac{x^2-14x+45}{x^2}$

17. $\frac{3x^2+13x+4}{x^2-4} \div \frac{4x+16}{x+2}$

18. $\frac{x^2-8x+15}{x^2+4x} \div (x^2-x-20)$