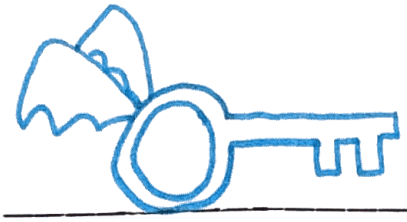

Name: _____ Class: _____

Homework: Multiply and Divide Rationals (Lesson 1)

Perform the indicated operation. Simplify the answer when possible.

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

$\frac{4}{11}$

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

$\frac{3}{16}$

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

$\frac{4}{3}$

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

1

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

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

$\frac{10x}{3}$

$x \neq 0$

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

$-\frac{3b^2}{2c^2}$

$c \neq 0 \quad a \neq 0$

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

$x+2$

$x \neq -5 \text{ or } 2$

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

x^2-1

$x \neq 0 \text{ or } -3$

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

$-x+4$

$x \neq 0$ or 2

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

$\frac{1}{2x-1}$

$x \neq -2, \frac{1}{2}$ or 4

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

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

$\frac{2c^2}{15b}$

$a \neq 0$ $b \neq 0$

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

$\frac{4xy}{5z^2}$

$z \neq 0$ $x \neq 0$

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

$\frac{9x+81}{x^3}$

$x \neq 0$ or 3

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

1

$x \neq -3$ or 3

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

$\frac{4x}{3x+3}$

$x \neq -1$ or 1

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

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

$x \neq -3, 0, \frac{1}{2}, 1$ or 5

17. $\frac{x^2-121}{x^2+x-20} \div \frac{x^2-10x+11}{x^2-25}$

$\frac{x^2+6x-55}{x^2-3x-4}$

$x \neq -5, -1, 4, 5$, or 11

18. $\frac{\frac{x^2-4}{x^2-7x+6}}{\frac{x^2+3x+2}{x^2-1}}$

$\frac{x-2}{x-6}$

$x \neq -2, -1, 1$, or 6