

Math III Honors – Simplify, Multiply, Divide Rational Expressions WS

Name: _____

Date: _____

Simplify each rational expression. State any restrictions on the variable.

1) $\frac{2x}{4x^2 - 2x}$

2) $\frac{z^2 - 49}{z + 7}$

3) $\frac{2x + 10}{x^2 + 10x + 25}$

4) $\frac{2y^2 + 8y - 24}{2y^2 - 8y + 8}$

Multiply. State any restrictions on the variable.

5) $\frac{2x^4}{10y^2} \cdot \frac{5y^3}{4x^3}$

6) $\frac{8y - 4}{10y - 5} \cdot \frac{5y - 15}{3y - 9}$

$$7) \quad \frac{x^2 - 5x + 6}{x^2 - 4} \cdot \frac{x^2 + 3x + 2}{x^2 - 2x - 3}$$

$$8) \quad \frac{2x^2 + 5x + 2}{4x^2 - 1} \cdot \frac{2x^2 + x - 1}{x^2 + x - 2}$$

Divide. State any restrictions on the variable.

$$9) \quad \frac{7x}{4y^3} \div \frac{21x^3}{8y}$$

$$10) \quad \frac{3y - 12}{2y + 4} \div \frac{6y - 24}{4y + 8}$$

$$11) \quad \frac{x^2}{x^2 + 2x + 1} \div \frac{3x}{x^2 - 1}$$

$$12) \quad \frac{a + 3}{a^2 + a - 12} \div \frac{a^2 - 9}{a^2 + 7a + 12}$$