

Name: _____

Multiplying & Dividing Rational Expressions

- 1) Rewrite each of the following expressions, carefully showing the main steps of your argument, and recording any values of the variables that are excluded

$$1) \frac{4x^2 - 9}{x + 1} \cdot \frac{x^2 - 1}{4x + 6}$$

$$2) \frac{x^2 - 1}{2x} \div \left(1 + \frac{1}{x}\right)$$

- 2) Find the product

$$1) \frac{xy}{x} \cdot \frac{z}{y}$$

$$2) \frac{2s}{3t} \cdot \frac{6}{4s^2}$$

$$3) \frac{7b^2}{c^2} \cdot \frac{3c}{b^2}$$

$$4) \frac{2p+1}{p^2} \cdot \frac{2p^2}{4p+2}$$

$$5) \frac{x(x+5)}{3} \cdot \frac{3}{x(2x+10)}$$

$$6) \frac{6r}{r+2} \cdot \frac{4r+8}{18}$$

$$7) \frac{3n+6}{n} \cdot \frac{n^2}{n^2+4n+4}$$

$$8) \frac{d^2+8d+16}{d^3} \cdot \frac{d^2}{d+4}$$

$$9) \frac{m}{m^2+4m+3} \cdot \frac{m+1}{m}$$

- 3) Divide the following rational expressions and simplify. No answers should contain negative exponents.

$$1) \quad \frac{x}{y^2 z^7} \div \frac{x^4 z^3}{y^5}$$

$$2) \quad \frac{a^3 c^7}{b^4} \div \frac{b^5 c^9}{a^2}$$

$$3) \quad \frac{a^5 b^6}{c^2 d^5} \div a^5 d^2$$

$$4) \quad x^4 z^5 \div \frac{x^3 y^2}{w^6 z}$$

$$5) \quad \frac{x+3}{x-1} \div \frac{x-5}{x-1}$$

$$6) \quad \frac{x+4}{x-2} \div \frac{x-3}{x-2}$$

$$7) \quad \frac{7x+7}{21x} \div \frac{x^2-1}{3x}$$

$$8) \quad \frac{7}{x^2-9} \div \frac{x+4}{x+3}$$

$$9) \quad \frac{x}{x^2+4} \div \frac{5x}{x+2}$$

$$10) \quad \frac{x^2-1}{x+6} \div \frac{x-1}{3x+18}$$

$$11) \quad \frac{-5}{16-x^2} \div \frac{10}{x-4}$$

$$12) \quad \frac{x^2+9}{x^2-1} \div \frac{x+3}{x^2-2x+1}$$

$$13) \quad \frac{x^2-4}{x+5} \div \frac{2-x}{25-x^2}$$

$$14) \quad \frac{b^2-4}{16b^2} \div \frac{2b+4}{4b}$$

$$15) \quad \frac{d}{d^2-16} \div \frac{6d}{d^2+2d-8}$$

- 4) Find the length of the kitchen in terms of x if the area is $x^2 + 10x + 24$ square feet.

