

Multiplying and Dividing Rational Functions

Name: _____

Multiply.

$$1) \frac{x^2 - 2x - 8}{9x^2 - 16} \cdot \frac{3x^2 + 10x + 8}{x^2 - 16}$$

$$2) \frac{8x^3 - 1}{x + 2} \cdot \frac{x^2 - 4}{2x^2 - 5x + 2}$$

$$3) \frac{x^2 + 8x + 16}{x^2 + 6x + 8} \cdot \frac{16x^2 - 64}{x^2 - 16}$$

$$4) \frac{2x^2 - 32}{x - 4} \cdot \frac{x + 1}{4x^2 - 4}$$

Divide.

$$5) \frac{4x^2 + 15x + 9}{8x^2 + 10x + 3} \div \frac{x^2 + 4x}{2x + 1}$$

$$6) \frac{4x^4 + 4x^2}{2x} \div \frac{x^4 - 1}{x^2 + 2x - 3} \cdot \frac{x^3 + 1}{x^2 + 3x}$$

$$7) \frac{\frac{x^2 - 4x - 5}{x^2 - 3x + 2}}{\frac{3x - 1}{x + 3}}$$

$$8) \frac{\frac{x^2 - 25}{x^2 + 10x + 25}}{x^2 - 7x + 10}$$

9) Determine the polynomial that completes $\frac{x-5}{x-2} \bullet \frac{?}{x-5} = x+1$.

10) The area of a rectangle is equal to $x^2 + 13x + 36$. What is the width if the length is $(x + 9)$?