

Name : _____

Multiplying and Dividing Rational Expressions

Simplify.

$$\textcircled{1} \quad \frac{6x - 18}{4x} \cdot \frac{x}{2x - 6}$$

$$\textcircled{5} \quad \frac{x^2 - 5x - 14}{28 + 3x - x^2}$$

$$\textcircled{2} \quad \frac{5x^2 - 15x}{2x^2 + 11x + 12} \cdot \frac{3x^2 - 48}{10x^3 - 70x^2 + 120x}$$

$$\textcircled{6} \quad \frac{x(x - 3)(x + 6)}{x^2 + x - 12}$$

$$\textcircled{3} \quad \frac{7x + 14}{2x^2 - 8} \cdot (x^2 + 3x - 10)$$

$$\textcircled{7} \quad \frac{x^3 - 9x^2}{x^2 - 3x - 54}$$

$$\textcircled{4} \quad \frac{x^3 - 27}{x^4 - 9x^2} \cdot \frac{x^5 + 3x^4}{x^2 + 3x + 9}$$

$$\textcircled{8} \quad \frac{x^2(x^2 + 3x + 2)}{2x(x - 4)(x + 2)}$$

Multiplying and Dividing Rational Expressions

Answers.

$$\textcircled{1} \quad \frac{6x - 18}{4x} \cdot \frac{x}{2x - 6}$$

$$= \frac{3}{4}$$

$$\textcircled{2} \quad \frac{5x^2 - 15x}{2x^2 + 11x + 12} \cdot \frac{3x^2 - 48}{10x^3 - 70x^2 + 120x}$$

$$= \frac{3(x - 3)(x - 4)}{2(2x + 3)(x^2 - 7x + 2)}$$

$$\textcircled{3} \quad \frac{7x + 14}{2x^2 - 8} \cdot (x^2 + 3x - 10)$$

$$= \frac{7}{2}(x + 5)$$

$$\textcircled{4} \quad \frac{x^3 - 27}{x^4 - 9x^2} \cdot \frac{x^5 + 3x^4}{x^2 + 3x + 9}$$

$$= x^2$$

$$\textcircled{5} \quad \frac{x^2 - 5x - 14}{28 + 3x - x^2}$$

$$= -\frac{x + 2}{x + 4}$$

$$\textcircled{6} \quad \frac{x(x - 3)(x + 6)}{x^2 + x - 12}$$

$$= \frac{x(x + 6)}{x + 4}$$

$$\textcircled{7} \quad \frac{x^3 - 9x^2}{x^2 - 3x - 54}$$

$$= \frac{x^2}{x + 6}$$

$$\textcircled{8} \quad \frac{x^2(x^2 + 3x + 2)}{2x(x - 4)(x + 2)}$$

$$= \frac{x(x + 1)}{2(x - 4)}$$