

Name : \_\_\_\_\_

# Multiplying and Dividing Rational Expressions

Multiply or divide the rational expressions. Show your work.

$$\textcircled{1} \quad (2x + 4) \cdot \frac{3x}{3x + 6}$$

$$\textcircled{5} \quad \frac{x^2 - x - 12}{3x - 9} \div \frac{x - 4}{12}$$

$$\textcircled{2} \quad (3x + 6) \cdot \frac{2x}{2x + 4}$$

$$\textcircled{6} \quad \frac{x^2}{6 - 3x} \div \frac{x}{8 - 4x}$$

$$\textcircled{3} \quad \frac{x^2 - 4}{x^2 - 1} \cdot \frac{x + 1}{x + 2}$$

$$\textcircled{7} \quad \frac{x - 4}{x^2 - 5x + 6} \div \frac{x - 3}{x^2 - 6x + 9}$$

$$\textcircled{4} \quad \frac{x^2 - 1}{x - 3} \cdot \frac{x^2 - 9}{x + 1}$$

$$\textcircled{8} \quad \frac{x^2 - 9}{6x} \div \frac{x^2 - 9}{18x^3}$$

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## Answers

$$\textcircled{1} \quad (2x + 4) \cdot \frac{3x}{3x + 6}$$

$$= 2x$$

$$\textcircled{2} \quad (3x + 6) \cdot \frac{2x}{2x + 4}$$

$$= 3x$$

$$\textcircled{3} \quad \frac{x^2 - 4}{x^2 - 1} \cdot \frac{x + 1}{x + 2}$$

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

$$\textcircled{4} \quad \frac{x^2 - 1}{x - 3} \cdot \frac{x^2 - 9}{x + 1}$$

$$= x^2 + 2x + 3$$

$$\textcircled{5} \quad \frac{x^2 - x - 12}{3x - 9} \div \frac{x - 4}{12}$$

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

$$\textcircled{6} \quad \frac{x^2}{6 - 3x} \div \frac{x}{8 - 4x}$$

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

$$\textcircled{7} \quad \frac{x - 4}{x^2 - 5x + 6} \div \frac{x - 3}{x^2 - 6x + 9}$$

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

$$\textcircled{8} \quad \frac{x^2 - 9}{6x} \div \frac{x^2 - 9}{18x^3}$$

$$= 3x^2$$