

# Rational Expressions Practice

Simplify each expression to its lowest term

1  $\frac{x^2 + 4x}{3x + 12}$

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2  $\frac{x^2 + 3x - 18}{x^2 + 8x + 12}$

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3  $\frac{x^3 + 11x^2 + 18x}{x^2 + x - 2}$

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4  $\frac{12x^3(5 - 2x)}{18x(2x - 5)}$

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State the excluded values for each expression

5  $\frac{x + 7}{x^2 + 4x - 21}$

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6  $\frac{x^2 + 6x + 5}{x + 1}$

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Simplify and state the excluded values

7  $\frac{2x^2 + 10x}{3x^2 + 15x}$

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8  $\frac{x^2 - 2x - 15}{x^2 - 6x + 5}$

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## Answers

$$\boxed{1} \quad \frac{x^2 + 4x}{3x + 12}$$

$$\boxed{2} \quad \frac{x^2 + 3x - 18}{x^2 + 8x + 12}$$

$$\frac{x}{3}$$

$$\frac{x - 3}{x + 2}$$

$$\boxed{3} \quad \frac{x^3 + 11x^2 + 18x}{x^2 + x - 2}$$

$$\boxed{4} \quad \frac{12x^3(5 - 2x)}{18x(2x - 5)}$$

$$\frac{x(x + 9)}{x - 1}$$

$$-\frac{2x^2}{3}$$

$$\boxed{5} \quad \frac{x + 7}{x^2 + 4x - 21}$$

$$\boxed{6} \quad \frac{x^2 + 6x + 5}{x + 1}$$

$$\{-7, 3\}$$

$$\{-1\}$$

$$\boxed{7} \quad \frac{2x^2 + 10x}{3x^2 + 15x}$$

$$\boxed{8} \quad \frac{x^2 - 2x - 15}{x^2 - 6x + 5}$$

$$\frac{2}{3}; \{0, 5\}$$

$$\frac{x + 3}{x - 1}; \{1, 5\}$$