

## Rational Expressions - Simplify

### Algorithm

1. factor the numerator and denominator
2. divide out common factors

Simplify the following rational expressions.

1. 
$$\frac{x^2 - 4}{x^2 + 5x + 6}$$

2. 
$$\frac{x^2 + 7x + 12}{x^2 + 9x + 20}$$

3. 
$$\frac{x^2 + 11x + 10}{x^2 - 3x - 4}$$

4. 
$$\frac{x^2 + 4x - 12}{x^2 - 8x + 12}$$

5. 
$$\frac{2x^2 + x - 3}{2x^2 + 7x + 6}$$

6. 
$$\frac{4x^2 + 3x - 1}{x^2 - 1}$$

7. 
$$\frac{6x^2 - 5x - 6}{10x^2 - 13x - 3}$$

## Simplifying Fractions

$\frac{x^2 - 4}{x^2 + x - 6}$	$\frac{y^2 - 1}{y^2 + 3y + 2}$	$\frac{x^2 - 3x - 4}{x^2 + 5x + 4}$
$\frac{x^2 - 6x + 9}{x^2 + 2x - 15}$	$\frac{x^2 + 2x - 15}{x^2 - x - 6}$	$\frac{x^2 - 8x - 9}{x^2 - 9x - 10}$
$\frac{x^2 + 13x + 22}{x^2 - 9x - 22}$	$\frac{x^2 + 4x - 21}{2x^2 - 5x - 3}$	$\frac{w^4 - 16x^8}{2w^2 - 8x^4}$
$\frac{x^5 - x}{x^{10} - x^2}$	$\frac{6ab(4c^2 - d^2)}{6bc + 3bd}$	$\frac{5 - 80c^2}{10a + 40ac}$
$\frac{16x^3}{4x^2 - 8xy}$	$\frac{6a^2 + 2ab}{9a^2 - b^2}$	$\frac{b^3 - bc^2}{bc(b - c)^2}$
$\frac{16x^2 - 8x + 1}{4x^2 + 11x - 3}$	$\frac{2x^2 + x - 3}{6x^2 + 5x - 6}$	$\frac{28 - 4x}{21y - 3xy}$