

# Solving Rational Equations



## Overview of problems



Example Set: A

Solve the equation and check your solution

$$\frac{x}{4} - \frac{x}{8} = 2$$

$$\frac{1}{3} - \frac{2}{3x} = \frac{1}{x}$$

$$\frac{6}{x-2} = \frac{5}{x-3}$$

$$\frac{-3}{x} = 2 + \frac{1}{x}$$

$$\frac{7}{3x-12} - \frac{1}{x-4} = \frac{2}{3}$$



Example Set: B

*Solve the equation and check your solution*

$$\frac{4}{x+1} = \frac{x}{3}$$



Example Set: C

*Solve the equation and check your solution*

$$5 + \frac{6}{x-3} = \frac{x+3}{x^2-9}$$



Example Set: D

*Solve the equation and check your solution*

$$\frac{5}{x-4} - \frac{3}{x-1} = \frac{x+11}{x^2-5x+4}$$

# Solving Rational Equations



## Overview of problems- KEY



Example Set: A

Solve the equation and check your solution

$$\frac{x}{4} - \frac{x}{8} = 2$$

$$x = 16$$

$$\frac{1}{3} - \frac{2}{3x} = \frac{1}{x}$$

$$x = 5$$

$$\frac{6}{x-2} = \frac{5}{x-3}$$

$$x = 8$$

$$\frac{-3}{x} = 2 + \frac{1}{x}$$

$$x = -2$$

$$\frac{7}{3x-12} - \frac{1}{x-4} = \frac{2}{3}$$

$$x = 6$$



### Example Set: B

Solve the equation and check your solution

$$\frac{4}{x+1} = \frac{x}{3} \quad x_1 = 3 \quad x_2 = -4$$



### Example Set: C

Solve the equation and check your solution

$$5 + \frac{6}{x-3} = \frac{x+3}{x^2-9} \quad x=2 \quad x=-3 \text{ extraneous root}$$



### Example Set: D

Solve the equation and check your solution

$$\frac{5}{x-4} - \frac{3}{x-1} = \frac{x+11}{x^2-5x+4}$$

No solution