

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

Date: \_\_\_\_\_

Class worksheet: Alg2H  
Rational expressions: Solving rational equations  
(book chapter 6)

$$\frac{2}{x} = \frac{3}{x-4}$$

$$x \neq 0, x \neq 4$$

$$\frac{2}{x} - \frac{3}{x-4} = 0$$

$$\frac{2-(x-4)-3x}{x(x-4)} = 0$$

$$\frac{2x-8-3x}{x(x-4)} = 0$$

$$2-x-8=0 \rightarrow \boxed{x=-8}$$

$$\text{check: } \frac{2}{-8} \stackrel{?}{=} \frac{3}{-8-4}$$

$$-\frac{1}{4} \stackrel{?}{=} \frac{3}{-12} \checkmark$$

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

$$x \neq 0$$

$$\frac{x^2+3+4x}{x} = 0$$

$$(x+1)(x+3) = 0$$

$$x = -1 \text{ or } x = -3 \Rightarrow \text{Both check}$$

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

$$x \neq 2$$

$$\frac{x^2-4}{x-2} = 0 \rightarrow x^2-4=0 \rightarrow x=+2 \text{ or } x=-2$$

not in original

↑  
✓

$$\frac{1}{x-1} + \frac{1}{x-2} = \frac{1}{(x-1)(x-2)} \quad \begin{array}{l} x \neq 1 \\ x \neq 2 \end{array}$$

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

$$2x-4=0 \rightarrow x=2 \rightarrow \text{Not a solution.}$$

$$y \neq 0 \quad y + \frac{5}{y} = -6 \quad \left. \begin{array}{l} \frac{y^2+5}{y} = \frac{-6y}{y} \\ \frac{y^2+6y+5}{y} = 0 \end{array} \right\} \quad y = -5, -1$$

$$x \neq 0 \quad \frac{1}{2} + \frac{2}{x} = \frac{1}{3} + \frac{3}{x} \quad \underline{x=6}$$