

Algebra III

2/1/18

Solving Rational Equations

Solve each equation

$$4. \frac{3x-1}{4} = \frac{2}{4} \cdot 4$$

$$3x-1=2$$

$$3x=3$$

$$x=1$$

$$8. \frac{3x-1}{8} = \frac{2}{4} \cdot 8^2$$

$$3x-1=4$$

$$3x=5$$

$$x=\frac{5}{3}$$

$$\frac{6}{1} \left(\frac{x}{3} - \frac{4}{6} \right) = (2) 6$$

$$\cancel{2} \frac{x}{3} - \frac{6 \cdot 4}{6} = 12$$

$$2x - 4 = 12$$

$$2x = 16$$

$$x = 8$$

$$24 \left(\frac{x+1}{12} - \frac{3}{8} \right) = (2) 24$$

$$2 \cancel{24} \frac{(x+1)}{12} - \frac{3 \cdot \cancel{24} 3}{8} = 48$$

$$2x + 2 - 9 = 48$$

$$2x - 7 = 48$$

$$2x = 55$$

$$x = \frac{55}{2}$$

Note: You CANNOT divide by 0!!!!!!

What can x not be?

$$\frac{3}{x} \quad x \neq 0$$

$$\frac{2x}{x-3} \quad x \neq 3$$

$$\frac{2}{x^2 + 2x - 8} \quad x \neq -4 \text{ or } +2$$

$$(x+4)(x-2)$$

Solve each equation: $m \neq 2$

$$\cancel{(m-2)} \left(\frac{4m+3}{m-2} \right) = \frac{3}{\cancel{(m-2)}} \cancel{(m-2)}$$

$$4m+3=3$$

$$4m=0$$

$$m=0$$

$$m \neq 0 \text{ or } 2$$

$$\cancel{(m-2)} \left(\frac{4}{m} \right) = \frac{3}{\cancel{(m-2)}} \cancel{(m-2)} m$$

$$4m-8=3m$$

$$-8=-m$$

$$8=m$$

Let's Solve $x \neq 0$

$$20x \left(-\frac{3}{20} + \frac{2}{x} \right) = \left(\frac{5}{4x} \right)$$

$$\frac{-3 \cdot \cancel{20} \cdot x}{\cancel{20}} + \frac{2 \cdot \cancel{20} \cdot x}{x} = \frac{5 \cdot \cancel{20} \cdot x}{\cancel{4} \cdot x}$$

$$-3x + 40 = 25$$

$$-3x = -15$$

$$x = 5$$

HW: p 349 #11 and 12 (list what x cannot be),
15-22

