

Name _____

Rational Expression Worksheet #14: Solving Equations

Solve each equation for x . SHOW WORK!

LCD: $x-8$ 1.) $\left(\frac{-4x}{x-8} - \frac{11}{x-8} = \frac{25}{x-8}\right) \left(\frac{x-8}{1}\right)$ LCD: $4(x-6)$

$$\begin{aligned} -4x - 11 &= 25 \\ -4x &= 36 \\ \boxed{x &= -9} \end{aligned}$$

2.) $\left(\frac{3}{4} - \frac{2x}{4x-24} = \frac{8}{x-6}\right) \left(\frac{4(x-6)}{1}\right)$

$$\begin{aligned} 3(x-6) - 2x &= 8 \cdot 4 \\ 3x - 18 - 2x &= 32 \\ \boxed{x &= 50} \end{aligned}$$

LCD: $12x$ 3.) $\left(\frac{3}{6x} - \frac{9}{12} = \frac{11}{4x}\right) \left(\frac{12x}{1}\right)$ LCD: $5(x+2)$

$$\begin{aligned} 3 \cdot 2 - 9x &= 11 \cdot 3 \\ 6 - 9x &= 33 \\ -9x &= 27 \\ \boxed{x &= -3} \end{aligned}$$

4.) $\left(\frac{18}{5x+10} + \frac{4}{5} = \frac{-6}{x+2}\right) \left(\frac{5(x+2)}{1}\right)$

$$\begin{aligned} 18 + 4(x+2) &= -6 \cdot 5 \\ 18 + 4x + 8 &= -30 \\ 4x + 26 &= -30 \\ 4x &= -56 \end{aligned}$$

LCD: $(x+2)(x+3)$ 5.) $\left(\frac{12}{x^2+5x+6} + \frac{7}{x+3} = \frac{2}{x+2}\right) \left(\frac{(x+2)(x+3)}{1}\right)$ LCD: $10x$

$$\begin{aligned} 12 + 7(x+2) &= 2(x+3) \\ 12 + 7x + 14 &= 2x + 6 \\ 7x + 26 &= 2x + 6 \\ 5x &= -20 \\ \boxed{x &= -4} \end{aligned}$$

6.) $\left(\frac{1}{10} + \frac{4x}{5x} = \frac{-9}{2x}\right) \left(\frac{10x}{1}\right)$ LCD: $10x$

$$\begin{aligned} x + 4x \cdot 2 &= -9 \cdot 5 \\ x + 8x &= -45 \\ 9x &= -45 \\ \boxed{x &= -5} \end{aligned}$$

7.) $\left(\frac{14}{2x-5} + \frac{7x}{2x-5} = \frac{63}{2x-5}\right) \left(\frac{2x-5}{1}\right)$ LCD: $(x-6)(x+2)$

$$\begin{aligned} 14 + 7x &= 63 \\ 7x &= 49 \\ \boxed{x &= 7} \end{aligned}$$

8.) $\left(\frac{2}{x-6} + \frac{7}{x+2} = \frac{4x+2}{x^2-4x-12}\right) \left(\frac{(x-6)(x+2)}{1}\right)$

$$\begin{aligned} 2(x+2) + 7(x-6) &= 4x+2 \\ 2x+4 + 7x-42 &= 4x+2 \\ 9x-38 &= 4x+2 \\ 5x &= 40 \\ \boxed{x &= 8} \end{aligned}$$