

Name Kel

Rational Expression Worksheet #9: Solving Equations

Solve each equation for x .

$$1.) \frac{-4x}{x-8} - \frac{11}{x-8} = \frac{25}{x-8} \quad x \neq 8$$

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

$$3.) \frac{3}{6x} - \frac{9}{12} = \frac{11}{4x} \quad x \neq 0$$

$$\begin{aligned} \frac{6}{12x} - \frac{9x}{12x} &= \frac{33}{12x} \\ 6 - 9x &= 33 \\ 9x &= -27 \\ x &= -3 \end{aligned}$$

$$5.) \frac{12}{x^2+5x+6} + \frac{7}{x+3} = \frac{2}{x+2} \quad x \neq -2, -3$$

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

$$7.) \frac{14}{2x-5} + \frac{7x}{2x-5} = \frac{63}{2x-5} \quad x \neq \frac{5}{2}$$

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

$$2.) \frac{3}{4} - \frac{2x}{4x-24} = \frac{8}{x-6} \quad x \neq 6$$

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

$$4.) \frac{18}{5x+10} + \frac{4}{5} = \frac{-6}{x+2} \quad x \neq -2$$

$$\begin{aligned} \frac{18}{5(x+2)} + \frac{4(x+2)}{5(x+2)} &= \frac{-6(5)}{5(x+2)} \\ 18 + 4x + 8 &= -30 \\ 4x &= -56 \\ x &= -14 \end{aligned}$$

$$6.) \frac{1}{10} + \frac{4x}{5x} = \frac{-9}{2x} \quad x \neq 0$$

$$\begin{aligned} \frac{x}{10x} + \frac{8x}{10x} &= \frac{-45}{10x} \\ 9x &= -45 \\ x &= -5 \end{aligned}$$

$$8.) \frac{2}{x-6} + \frac{7}{x+2} = \frac{4x+2}{x^2-4x-12} \quad x \neq -2, 6$$

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