Name Key

Rational Expression Worksheet #9: Solving Equations

Solve each equation for x.

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

$-4x-11=25$

$-4x=36$

$\boxed{x=-9}$

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

$\frac{3(x-6)}{4(x-6)}-\frac{2x}{4(x-6)}=\frac{8(4)}{4(x-6)}$

$3x-18-2x=32$

$\boxed{x=50}$

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

$\frac{6}{12x}-\frac{9x}{12x}=\frac{33}{12x}$

$6-9x=33$

$9x=-27$

$\boxed{x=-3}$

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

$\frac{18}{5(x+2)}+\frac{4(x+2)}{5(x+2)}=\frac{-6(5)}{5(x+2)}$

$18+4x+8=-30$

$4x=-56$

$\boxed{x=-14}$

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

$\frac{12}{(x+2)(x+3)}+\frac{7(x+2)}{(x+2)(x+3)}=\frac{2(x+3)}{(x+2)(x+3)}$

$12+7x+14=2x+6$

$5x=-20$

$\boxed{x=-4}$

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

$\frac{x}{10x}+\frac{8x}{10x}=\frac{-45}{10x}$

$9x=-45$

$\boxed{x=-5}$

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

$14+7x=63$

$7x=49$

$\boxed{x=7}$

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

$2(x+2)+7(x-6)=4x+2$

$2x+4+7x-42=4x+2$

$5x=40$

$\boxed{x=8}$