9.6 Rational Equations

std. 1.0

Solve for x.

1 $\dfrac{3}{x^2+4x} = \dfrac{1}{x+4}$

$x^2+4x = 3x+12$

$x^2+x-12 = 0$

$(x+4)(x-3)=0$

$x = -4, 3$

2 $x(x+1)\left(\dfrac{1}{x} + \dfrac{4}{x+1}\right) = (6)\,x(x+1)$

$(x+1)+4x = 6x(x+1)$

$0 = 6x^2+x-1$

$(2x+1)(3x-1)$

$x = -\dfrac{1}{2}, \dfrac{1}{3}$

3 $\left[\dfrac{3x-2}{x-2} = \dfrac{6}{x^2-4} + 1\right](x+2)(x-2)$

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

$(3x-2)(x+2) = 6+(x^2-4)$

$3x^2+4x-4 = x^2+2$

$2x^2+4x-6=0$

$x^2+2x-3=0$

$(x+3)(x-1)$

$x = -3, 1$