

# 6.5 Solving Rational Equations part 2

ex. 1  $\frac{-10}{x^2 - 12x + 35} = \frac{x}{x-5}$  NPV  $x \neq 7,5$

$(x-7)(x-5)$

$$\frac{-10 \cancel{(x-5)}}{(x-7)\cancel{(x-5)}} = \frac{x}{\cancel{(x-5)}}$$

$$\frac{-10}{(x-7)} = x$$

$$-10 = x(x-7)$$

$$-10 = x^2 - 7x$$

$$0 = x^2 - 7x + 10$$

$$0 = (x-5)(x-2)$$

$$\boxed{\cancel{x=5} \quad x=2}$$

extraneous

Solution

2.  $\frac{x+1}{x+6} + \frac{x-2}{x+4} = \frac{11x+32}{x^2+10x+24}$

$(x+6)(x+4)$  NPV  $x \neq -6, -4$

$(x+6)(x+4)$  LCD  $(x+6)(x+4)$

$(x+6)(x+4)$  MULT. ALL expressions by LCD

$$(x+1)(x+4) + (x-2)(x+6) = 11x+32$$

$$\underline{x^2+4x+x+4} + \underline{x^2+6x-2x-12} =$$

$$2x^2 + 9x - 8 = 11x + 32$$

$-11x \quad -32$

$$2x^2 - 2x - 40 = 0$$

$$2(x^2 - x - 20) = 0$$

$$2(x-5)(x+4) = 0$$

$$\boxed{x=5 \quad \cancel{x=-4}}$$

Solution

$2(p+1)$

$(p-1)(p+1)$

NPV

### Solution

ex.3  $\frac{2p}{p-1} + \frac{p-5}{p^2-1} = 1$

$$\begin{aligned} 2p(p+1) + p-5 &= (p-1)(p+1) \\ 2p^2 + 2p + p-5 &= p^2 - 1 \\ -p^2 + 1 & \end{aligned}$$

$$p^2 + 3p - 4 = 0$$

$$(p+4)(p-1) = 0$$

$p = -4$  ,  ~~$p = 1$~~

### Solution

P 582 # 5-7, 9, 10, 15  
OR  
handout