Learning Activity – Section 4.4 – Solve a Proportion

Names: Students _____ _____

_____ _____

Solve each proportion and write the solution set.

1. $\frac{2}{x+1} = \frac{x-6}{x^2-1}$ $\Rightarrow$ $\frac{2}{x+1} = \frac{x-6}{(x+1)(x-1)}$

$x \neq -1$

$x \neq 1.$

$2 = \frac{x-6}{x-1}$ $\therefore$ $2(x-1) = x-6$

$2x-2 = x-6$

$\boxed{x = -4}$

$\{-4\}.$

2. $\frac{-4}{x^2-5x+6} = \frac{2x}{x-2}$

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

Solution:

Just

$\{1\}$

$x \neq 2$

$x \neq 3$

$\frac{-4}{x-3} = 2x$

$-4 = 2x(x-3)$

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

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

$0 = x^2 - 3x + 2$ $\therefore$ $(x-1)(x-2) = 0$

$x = 1, \; x = 2.$

$x \neq 2.$ ←

3. $\frac{-2}{x-2} = \frac{x-3}{8x+11}$

cross multiply:

$-2(8x+11) = (x-2)(x-3)$

$-16x-22 = x^2-5x+6$

$0 = x^2+11x+28$

$0 = (x+7)(x+4)$

$x = -7, \quad x = -4$

$\{-4, -7\}$

$x-2=0$

$x=2$

$8x+11=0$

$x \neq -11/8$

restricted values.