

Today, we do it all --
equation style!



$$\frac{x}{4} - \frac{7}{x} = 3$$

Non Permissible Values	$x \neq 0$
Lowest Common Denominator	$4x$
There is an equal sign. Multiply each term by the LCD. Clear fractions.	$\begin{array}{l} \cancel{4x} \frac{x}{\cancel{4}} - \cancel{4x} \frac{7}{\cancel{x}} = 3 \\ x^2 - 7(4) = 3(4x) \\ x^2 - 28 = 12x \\ x^2 - 12x - 28 = 0 \end{array}$

-14, 2

Solve. Factoring / Quadratic Formula	$(x-14)(x+2) = 0$ $\begin{array}{c} \uparrow \qquad \qquad \uparrow \\ x-14=0 \quad \text{or} \quad x+2=0 \\ \underline{x = 14} \qquad \qquad \underline{x = -2} \end{array}$
Check Non Permissible values. Substitute	$\frac{x}{4} - \frac{7}{x} = 3$ <hr/> $\begin{array}{l l} \frac{4}{4} - \frac{7}{14} = 3 & \frac{-2}{4} - \frac{7}{-2} = 3 \\ \frac{2}{2} - \frac{1}{2} = 3 & \frac{-1}{2} + \frac{7}{2} = 3 \\ \frac{6}{2} = 3 & \frac{6}{2} = 3 \\ \frac{6}{3} = 3 & 3 = 3 \end{array}$

$$\frac{9}{y-3} - \frac{4}{y-6} = \frac{18}{y^2-9y+18} \rightarrow \frac{(y-6)(y-3)}{LCM =}$$

$$\frac{9(y-6) - 4(y-3)}{(y-6)(y-3)} = \frac{18}{(y-6)(y-3)}$$

$$9(y-6) - 4(y-3) = \frac{18(y-6)(y-3)}{\cancel{(y-6)(y-3)}}$$

$$9(y-6) - 4(y-3) = 18$$

$$9y - 54 - 4y + 12 = 18$$

$$5y - 60 = 0$$

$$y = \frac{60}{5}$$

$$y = 12$$

$$\frac{3x}{x+2} - \frac{5}{x-3} = \frac{-25}{x^2-x-6} \quad (x-3)(x+2)$$

$$\frac{3x(x-3) - 5(x+2)}{(x+2)(x-3)} = \frac{-25}{(x-3)(x+2)}$$

$$3x(x-3) - 5(x+2) = -25$$

$$3x^2 - 9x - 5x - 10 = -25$$

$$3x^2 - 14x + 15 = 0$$

$$\rightarrow (x-3)(3x-5) = 0$$

$$x-3=0$$

~~$$x=3$$~~

$$3x-5=0$$

Also $x = \frac{5}{3}$

Quiz Tomorrow on Adding and Subtracting.

HW: pg: 349

#1,2,3,4,6

