Top-left panel:

$$\frac{4}{k^2 - 8k + 12} - \frac{k}{k-2} = \frac{5}{5k-30}$$

You could have cancelled these 5's before you moved onto the next step

$$\frac{5}{5}\frac{4}{(k-2)(k-6)} - \frac{k}{(k-2)}\cdot\frac{5(k-6)}{5(k-6)} = \frac{5}{5(k-6)}\cdot\frac{k-2}{(k-2)}$$

$$\frac{20 - 5k^2 + 30k}{5} = \frac{5k-10}{5}$$

If you didn't cancel the 5's earlier you can divide both sides of the equation by 5 now.

$$4 - k^2 + 6k = k - 2$$

$$0 = k^2 - 5k - 6$$

$$= (k-6)(k+1) \qquad \boxed{k = -1}$$

Top-right panel:

Problems similar to some of the "book" problems

Solve.

$$\frac{2x + 8}{x^2 - 16} + \frac{7}{-x - 4} = \frac{5}{x - 4}$$

$$(x+4)(x-4)$$

Factor out -1 from the denominator

$$\frac{2x+8}{(x+4)(x-4)} + \frac{7}{-1(x+4)} = \frac{5}{x-4}$$

$$\frac{2x + 8}{(x+4)(x-4)} + \frac{-7}{x+4}\cdot\frac{(x-4)}{(x-4)} = \frac{5}{x-4}\cdot\frac{(x+4)}{(x+4)}$$

Now that the denominators are the same you can solve the equation created using the numerators.

$$2x + 8 - 7x + 28 = 5x + 20$$

$$-5x + 36 = 5x + 20$$
$$+5x \quad -20 \quad +5x \quad -20$$
$$16 = 10x$$

$$\boxed{x = \frac{16}{10} = 1.6}$$

Bottom-left panel:

Solve.

$$\frac{-1}{-1}\cdot\frac{3}{5-x} - \frac{4x}{x^2 - 25} = \frac{8}{x+5}$$

$$(x-5)(x+5)\left(\frac{-3}{x-5} - \frac{4x}{(x+5)(x-5)}\right) = \left(\frac{8}{(x+5)}\right)(x+5)(x-5)$$

$$-3x - 15 - 4x = 8x - 40$$

$$-7x - 15 = 8x - 40$$

$$25 = 15x$$

$$x = \frac{25}{15} = \boxed{\frac{5}{3}}$$

Bottom-right panel:

Sally can rake the lawn in 3 hours. Karl can rake the lawn in 2 hours. How long would it take them to rake the lawn if they worked together?

Sally $\quad \frac{1}{3}\frac{lawn}{hr}$

Karl $\quad \frac{1}{2}\frac{lawn}{hr}$

$$6\left(\frac{1}{3}\cdot h + \frac{1}{2}h = 1\right)$$

$$2h + 3h = 6$$

$$5h = 6$$

$$h = \frac{6}{5}$$

$$\boxed{1.2\, hrs}$$

One pump can fill a tank in 1 hour and 40 minutes. Another pump can fill the same tank in 1 hour and 20 minutes. How long would it take them to fill the tank together?

100 min

80 min

$$400 \left(\frac{1}{100} \frac{\text{tanks}}{\text{min}} \cdot M + \frac{1}{80} \frac{\text{tank}}{\text{min}} \cdot M = 1 \right)$$

$$4m + 5m = 400$$

$$9m = 400$$

$$m = \boxed{\frac{400}{9} \text{ min}}$$

You can now finish Hwk #11

Sec 9-6   Due Tomorrow

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Problems 5, 25, 41, 46, 48 - 51