S 1.1, 1.2

$\frac{x}{2} + \frac{x}{5} = \frac{x}{6} - \frac{1}{3}$

LCD = $2 \cdot 5 \cdot 3$

$6 = 3 \cdot 2$

$\frac{x}{2} \cdot \frac{5 \cdot 3}{5 \cdot 3} + \frac{x}{5} \cdot \frac{2 \cdot 3}{2 \cdot 3} = \frac{x}{2 \cdot 3} \cdot \frac{5}{5} - \frac{1}{3} \cdot \frac{2 \cdot 5}{2 \cdot 5}$

$\frac{15x + 6x}{LCD} = \frac{5x - 10}{LCD}$

Write much
Think little.

$15x + 6x = 5x - 10$

$21x = 5x - 10$

$-5x = -5x$

$16x = -10$

$\frac{16x}{16} = \frac{-10}{16} = -\frac{5}{8} = x$

S 1.7

$\frac{2}{x^2 - 5x + 6} - \frac{7}{x^2 + x - 6}$ is hard!

$-7x+3 < 13$

$-7x < 10$

$\frac{-7x}{-7} > \frac{10}{-7}$

$x > -\frac{10}{7}$

S'1.2 : Mixture Probs
Shared-work Probs

Section 1.2 tries to hide the fact that there are actually 2 variables, here. x and y. They'll use 'x' and then make y = 100-x without telling you there's a 'y'.

Lexicon

Sally can mow the cemetery in 9 hours and Jane can mow the cemetery in 12 hours. How long does it take them working together?

Lexicon : Let x = how long they work together, in hours.

Sally takes 9 hours.
In one hour, Sally has done $\frac{1}{9}$ of the cemetery.

$\frac{1}{9}\ \frac{\text{job done}}{1\ \text{hour}} \cdot x\ \text{hours} = \frac{1}{9}x$ of the job is done by Sally.

$\frac{1}{12}x$ = how much of the job Jane did

We want one job done

$$\frac{1}{9}x + \frac{1}{12}x = 1$$

What if Jane's fooling around with Tarzan and shows up 2 hours late?

Let x = how long Sally worked (in hours)
& y = " " Jane " " "

Then

$$\frac{1}{9}x + \frac{1}{12}y = 1$$

$$\Rightarrow \quad \frac{1}{9}x + \frac{1}{12}(x-2) = 1$$

Jane's late!