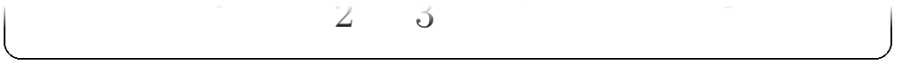
Tidy Up, Then Solve

SY04-V1 · storyboard · SY04 Tidy the system first. Read each picture with its sentences.

Picture 1



$$3x + 2y = 18 \quad \text{first } \times 6$$

$$2x + y = 11 \quad \text{second } \times 10$$

$$y = 11 - 2x \quad y \text{ alone}$$

$$3x + 2(11 - 2x) = 18 \quad \text{swap it in}$$

$$-x + 22 = 18$$

$$\boxed{x = 4, \quad y = 3}$$

1. Solve the system x/2 + y/3 = 3 and 0.2x + 0.1y = 1.1.
2. Times six, every term: 3x + 2y = 18.
3. Times ten, every term: 2x + y = 11.
4. Now it is a tidy system.
5. Get y alone: y = 11 − 2x.
6. Swap it in, in brackets.
7. That is −x + 22 = 18.
8. So x = 4, and y = 11 − 8 = 3.
9. The solution is four, three.

Picture 2

Trap $\frac{x}{2} + \frac{y}{3} = 3$

$\times \; 3x + 2y = 3$

$\checkmark \; 3x + 2y = 18$

10. Watch for the trap: multiplying only the fractions.
11. Every term gets multiplied, the three on the right too.

Picture 3

Trap $5y = 2x + 1$

$\times \; 2x + 5y = 1$

$\checkmark \; -2x + 5y = 1$

12. And watch for keeping the sign when a term moves.
13. Two x moves to the left, so it changes sign.