Warm-Up Notes

MAT 100: Elementary Algebra

Fall 2026

Section 2.3 Solve Equations with Variables and Constants on Both Sides

Install — 10 minute lesson

Objectives of this Section

- Solve an equation with constants on both sides
- Solve an equation with variables on both sides
- Solve an equation with variables and constants on both sides

Skills

Introduced in this section:

- **EQN.MS** — Multi-step Equations

Also practiced: WRD.NM (Naming the model), WRD.EQ (Decoding an explicit equation).

Lesson

Every equation you've solved so far has kept the variable on one side and the numbers on the other. That's about to end. Some equations have variable terms *and* number terms mixed together on both sides at once, and you can't just divide your way out. The move is to pick one side to be the "variable side," then use addition or subtraction to walk every variable term onto it and every number off of it — until you're back to an equation you already know how to finish.

I do

Watch. Solve the following equations with variables and constants on both sides.
$5y - 30 = -5y + 30$

We do

Together. Solve the equation for the variable. Show your work. $-62 = 8n - 6$

You do

Your turn. Solve the equation for the variable. Show your work. $-14q - 2 = 16$

Your turn. Solve the following equations with variables and constants on both sides. $6x - 17 = 5x + 2$

Practice

1. Solve the equation for the variable. Show your work. $12x - 8 = 64$

2. Solve the following equations with variables and constants on both sides. $12q - 5 = 9q - 20$

3. Solve the following equations with variables and constants on both sides. $\frac{1}{4}y + 7 = \frac{3}{4}y - 3$

4. Solve the equation for the variable. Show your work. $3m + 9 = -15$