

M117 SECTION 4.3 SOLVING SYSTEMS BY ADDITION METHOD

- STEP 1 Multiply one equation by a value of your choosing so that the x (or y) variables are additive inverses. (example: $2x$ and $-2x$ or $-3y$ and $3y$)
- STEP 2 Add the equations in a vertical manner. This should result in the elimination x (or y)!
- STEP 3 Solve for y (or x).
- STEP 4 Substitute y (or x) back into one of the *original* equations and solve for x (or y).
- STEP 5 Write your solution (if there is one) as an ordered pair. Or make a conclusion about whether the lines are parallel (no solution or \emptyset or no solution) or the same line (infinitely many solutions).
- STEP 6 Check.

Solve the following systems.

$$4x + 3y = 8$$

$$x - 3y = 7$$

$$-3x - 5y = 6$$

$$x + 2y = -1$$

$$3x - 4y = -14$$

$$5x + 7y = 45$$

$$-8x + 20y = -5$$

$$2x - 5y = 4$$

$$\frac{1}{2}x - y = \frac{3}{4}$$

$$4x - 3y = 10$$

$$8x + 6y = 5$$

$$2x + y = 1$$