

Solving Systems using Substitution

$$8x + 2y = 2$$

$$x + 3y = 14$$

This makes the best choice because it has a coefficient of 1.

Step 1: Pick one equation and solve for a variable.

$$x = -3y + 14$$

$$8(-3y + 14) + 2y = 2$$

$$-24y + 112 + 2y = 2$$

$$-22y + 112 = 2$$

$$-22y = -110$$

$$y = 5$$

$$x + 3y = 14$$

$$x + 3(5) = 14$$

$$x + 15 = 14$$

$$x = -1$$

Step 2: Substitute into the other equation and solve for the remaining variable.

Step 3: Plug the newly found variable into the remaining equation and solve for the last variable.