

Learning Goal #1 - Solve a system by graphing

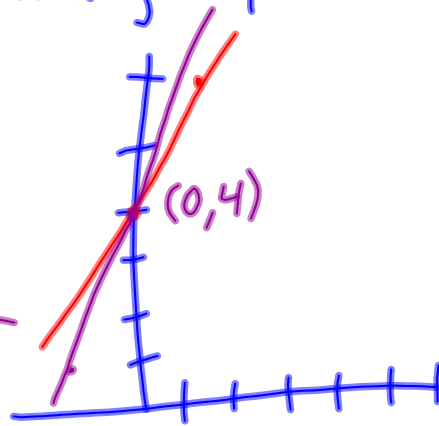
- Solving a system means finding the point of intersection.

$$y = 2x + 4$$

$$y = 4x + 4$$

L.S	R.S
4	$2x + 4$
4	$2(0) + 4$
✓	✓ 4

L.S	R.S
4	$4x + 4$
4	$4(0) + 4$
✓	✓ 4



Learning Goal #2 - Solving by Substitution

$$2x + 4y = 10 \quad (1)$$

$$x + y = 5 \rightarrow x = 5 - y \quad (2)$$

Sub (2) into (1),

$$2(5 - y) + 4y = 10$$

$$10 - 2y + 4y = 10$$

$$10 + 2y = 10$$

$$2y = 10 - 10$$

$$2y = 0$$

$$y = 0$$

Sub (y) into (2),

$$x = 5 - y$$

$$x = 5 - 0$$

$$x = 5$$

$$(5, 0)$$

Learning Goal #3 - Solve by Elimination

$$\begin{aligned} 2x + 4y &= 10 \text{ (1)} \\ (x + y = 5) \times 2 \\ 2x + 2y &= 10 \text{ (2)} \end{aligned}$$

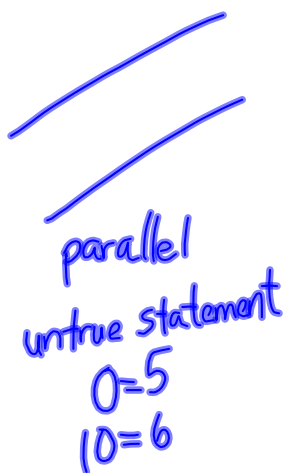
$$\begin{aligned} \ominus \quad & 2x + 4y = 10 \\ & 2x + 2y = 10 \\ \hline & 2y = 0 \\ & y = 0 \end{aligned}$$

Sub (y) into (2)

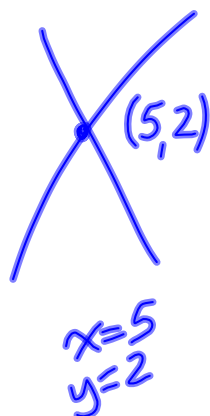
$$\begin{aligned} x + y &= 5 \\ x + 0 &= 5 \\ x &= 5 \end{aligned} \quad (5, 0)$$

Learning Goal #4 - # of solutions/solution types

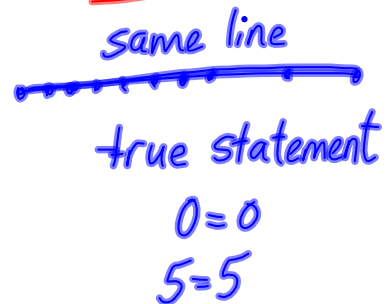
no solution



one solution



infinitely many solutions



$$y = 3x + 2 \text{ ①}$$

$$2y = 6x + 4 \text{ ②}$$

Sub ① into ②,

$$2(3x + 2) = 6x + 4$$

$$6x + 4 = 6x + 4$$

$$6x - 6x = 4 - 4$$

$$0 = 0$$

infinitely many solutions
∴ same line

$$y = 3x + 2 \text{ ①}$$

$$3y = 9x + 12 \text{ ②}$$

Sub ① into ②,

$$3(3x + 2) = 9x + 12$$

$$9x + 6 = 9x + 12$$

$$9x - 9x = 12 - 6$$

$$0 = 6$$

no solution
∴ parallel lines

Learning Goal #4/#5 - Setting up & solving Systems

Decide between 2 sports magazine subscriptions

A: Sports Illustrated cost \$20 sign up and then \$1/issue.

B: Sportsnet Magazine costs \$15 sign up and then \$2/issue.

$$A: C = 20 + 1i$$

$$B: C = 15 + 2i$$

$$20 + 1i = 15 + 2i$$

$$20 - 15 = 2i - 1i$$

$$5 = 1i$$

$$i = 5 \quad (5, 25)$$

