

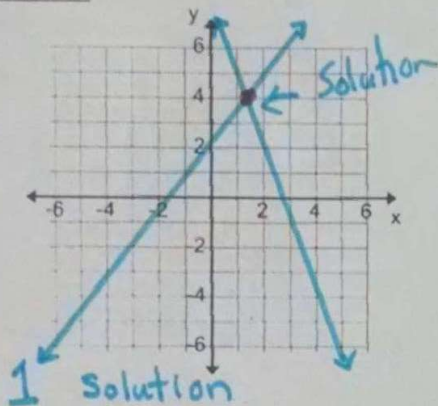
Notes: Solving Systems of Equations by Graphing

A system of equations is a set of two or more linear equation (two or more lines)

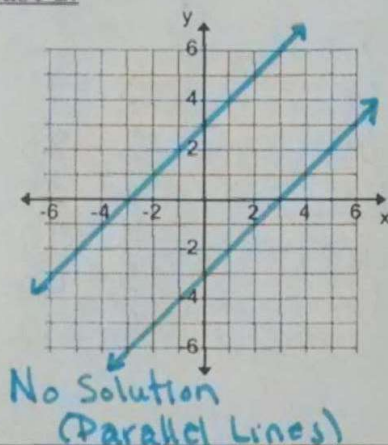
The **SOLUTION** to a system of equations is the point where the lines intersect.

There are three possible solutions for a system of linear equations.

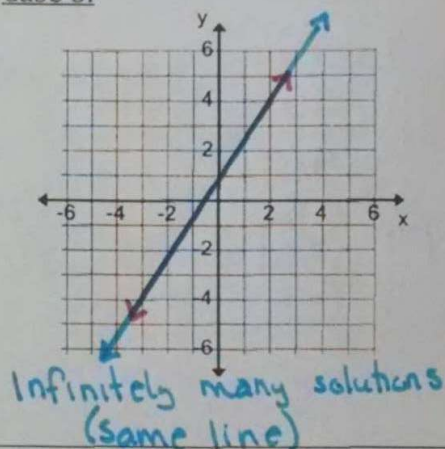
Case 1:



Case 2:

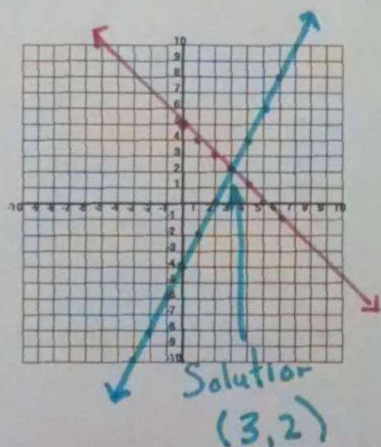


Case 3:

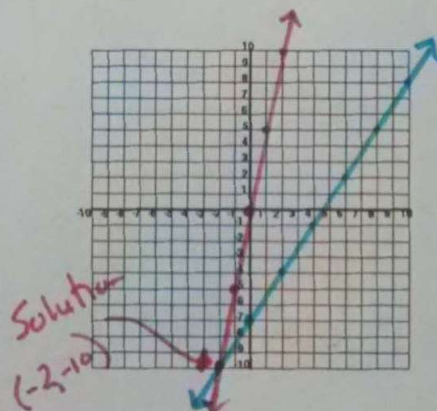


Solve the system by graphing.

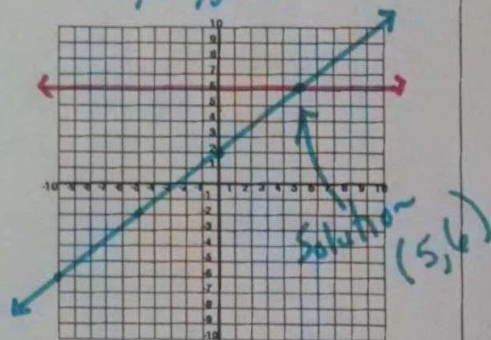
1) $y = 2x - 4$
 $y = -x + 5$



2) $y = \frac{3}{2}x - 7$
 $y = 5x$



3) $y = 6$
 $4x - 5y = -10$
 $-5y = -4x - 10$
 $y = \frac{4}{5}x + 2$



State whether the given ordered pair is a solution to the system.

A) $(2, -2)$ $2x + y = 2$
 $x - y = 4$

$$2(2) + (-2) = 2$$

$$4 - 2 = 2$$

$$2 = 2 \checkmark$$

$$2 - (-2) = 4$$

$$2 + 2 = 4$$

$$4 = 4 \checkmark$$

$(2, -2)$ is a Solution

B) $(3, 2)$ $2x - y = 8$
 $x + y = 1$

$$2(3) - 2 = 8$$

$$6 - 2 = 8$$

$$4 \neq 8 \times$$

$(3, 2)$ is not a Solution

C) $(-4, -5)$ $3x + 5y = -37$
 $-x - y = -9$

$$3(-4) + 5(-5) = -37$$

$$-12 + -25 = -37$$

$$-37 = -37 \checkmark$$

$$-(-4) - (-5) = -9$$

$$4 + 5 = -9$$

$$9 \neq -9$$

Not a Solution

2nd Trace 5 Enter enter Enter

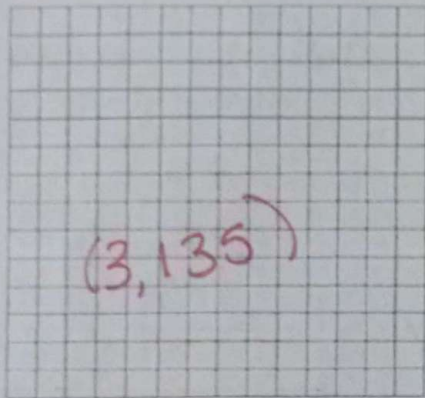
1) Gym A charges an initial membership fee of \$75 plus a monthly fee of \$20. Gym B charges an initial fee of \$60 and a monthly fee if \$25.

Equation Gym A

$$y = 20x + 75$$

TABLE

X	Y
0	75
1	95
2	115
3	135
4	155



Equation Gym B

$$y = 25x + 60$$

TABLE

X	Y
0	60
1	85
2	110
3	135
4	160

2) The Bowie Baseball Team is selling hats as a fundraiser. They contacted 2 companies. Hats Off charges \$12 per hat. Top Stuff charges a \$15 design fee and \$9 per hat. Write an equation to represent each company and graph each line.

Hats Off Equation:

$$y = 12x$$

TABLE

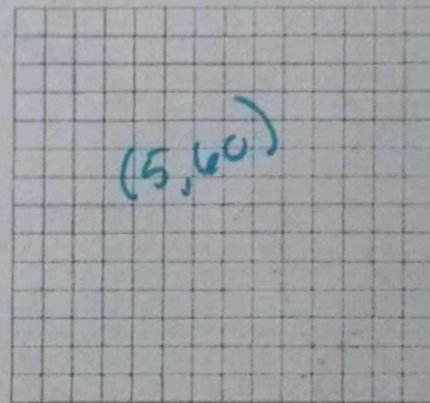
X	Y
2	24
3	36
4	48
5	60
6	72

Top Stuff Equation:

$$y = 15 + 9x$$

TABLE

X	Y
2	33
3	42
4	51
5	60
6	69



Find the intersection in your tables and the graph!

At what point do the two lines intersect? (3, 135)

What does the intersection mean for this situation?

at 3 months both gyms charge \$135

Which gym should you join if you plan to work out for 2 months? For 1 year?

Find the intersection in your tables and the graph!

At what point do the two lines intersect? (5, 60)

What does the intersection mean for this situation

Each company charges \$60 for 5 hats

Which company should Bowie buy from if they plan to purchase 20 hats?

Top Stuff