

11/20 Algebra 1-Downing

5.1 B Systems by Graphing

Tell whether the ordered pair is a solution to the equation.

* Plug in $x+y$ to see if it is true

1) $(4,4)$ $y = -x + 8$
 \downarrow \downarrow
 $4 = -4 + 8$
 $4 = 4 \checkmark$

2) $(-2,3)$ $y = -2x - 1$
 \downarrow \downarrow
 $3 = -2(-2) - 1$
 $3 = 4 - 1$

$(4,4)$ is a solution
 ↑ this point is on that line

$3 = 3$ $(-2,3)$ is a solution
 ↑ this point is on that line

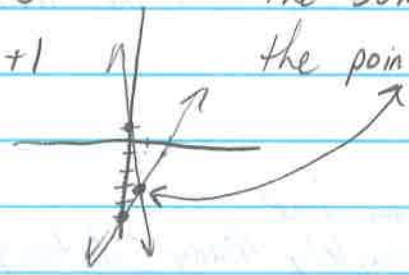
3) $(1,2)$ $y = -2x - 1$
 \downarrow \downarrow
 $2 = -2(1) - 1$

$2 = -3$ Not true $(1,2)$ is not a solution

System of Linear Equations - a set of two or more linear equations.

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

The solution to a system of equations is the point that they meet on a graph.



Ex) $(2,5)$ $x+y=7$
 $2x-3y=-11$

Tell whether the ordered pair is a system of linear equations.

plug in to both

$2+5=7$ $3(2)-3(5)=-11$

$7=7 \checkmark$

$6-15=-11$

True for both, so $(2,5)$ is a solution

$-11=-11 \checkmark$

Ex) $(-2,0)$ $y = -2x - 4 \rightarrow 0 = -2(-2) - 4$

$y = x + 4$
 \downarrow

$0 = 4 - 4$

$0 = -2 + 4$

$0 = 0 \checkmark$ true

$0 = 2$ Not true

$(-2,0)$ is not a solution (Not true for both equations)

Solving Systems by Graphing in the GDC

Step 1: $y=$ → check that $\boxed{\text{Plot1}}$ is OFF

Step 2: enter equations into $y1$ and $y2$ (make sure your equations are in $y=mx+b$)

Step 3: $\boxed{\text{zoom}}$ → $\boxed{6}$

Step 4: $\boxed{2nd}$ → $\boxed{\text{Trace}}$ → $\boxed{5 \rightarrow \text{intersect}}$ → $\boxed{\text{enter}}$ → $\boxed{\text{enter}}$ → $\boxed{\text{enter}}$

Ex) Solve by graphing

$$\begin{array}{r} 2x + y = 5 \\ -2x \quad -2x \end{array} \quad \text{and} \quad \begin{array}{r} 3x - 2y = 4 \\ -3x \quad -3x \end{array}$$

Intersection

$(2, 1)$

$$y = -2x + 5$$

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

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

Ex) $y = 2x - 3$

$y = 2x + 4$

No Solution

(Same slope with different y -intercepts are parallel lines that never meet)

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

$$\begin{array}{r} 4x - 6y = 12 \\ -4x \quad -4x \end{array}$$

$$\frac{-6y}{-6} = \frac{-4x + 12}{-6}$$

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

Same line
Infinitely Many Solutions
(Same slope and same y -int.)

HW WS 5.1B