L1 – Solving Linear Systems by GRAPHING Unit 1

MPM2D

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_____: Two or more linear equations that are considered at the same time.

_____: The point where 2 or more lines cross.

To _____ a linear system means to find the values of the variables that satisfy ALL of the equations in the system. Graphically speaking, this means you will find the ordered pair (x, y) where the lines intersect.

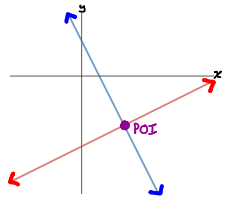
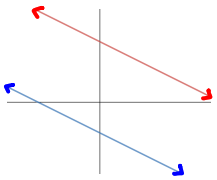
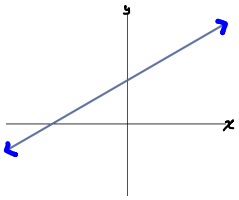
There are 3 main methods for solving a linear system:

1) Graphing
2) Substitution
3) Elimination

When solving by graphing, you can graph the lines by:

1) Using the slope and y-intercept (rearrange in to $y = mx + b$ form)
2) Use the x and y intercepts of each line
3) Create a table of values for each equation

A linear system could have 1, 0, or infinitely many solutions:

Graph	Slopes of Lines	Intercepts	Number of Solutions
Intersecting 			
Parallel & Distinct 			
Parallel & Coincident 			

Steps for Solving a Linear System by GRAPHING

1) Rearrange the equations in to slope y-intercept form ($y = mx + b$)

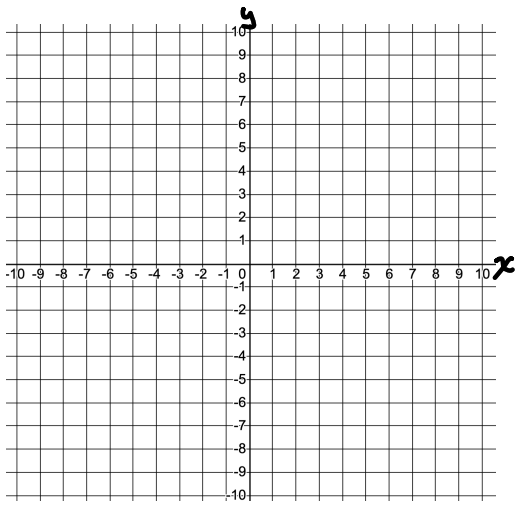
2) Graph equations and find the point of intersection

3) Verify that the point of intersection satisfies the equation of both lines

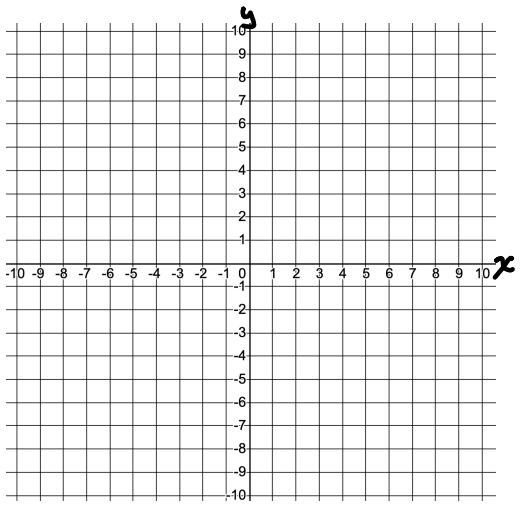
4) Clearly communicate your solution

Example 1: Find the point of intersection of the graphs of the following systems of equations.

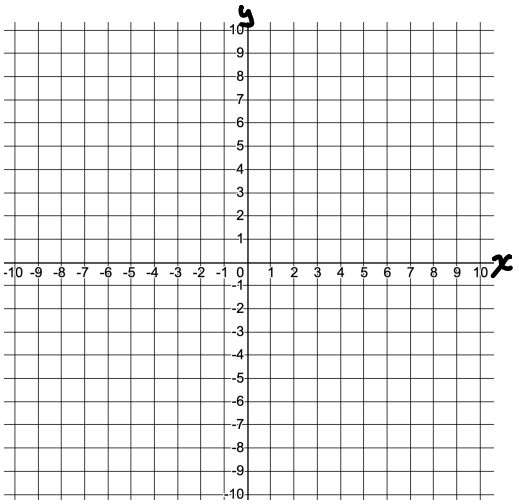
a) ℓ_1: $y = x + 4$
ℓ_2: $y = -x + 2$



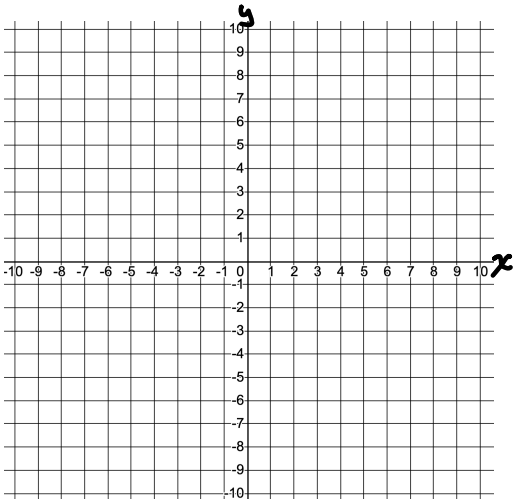
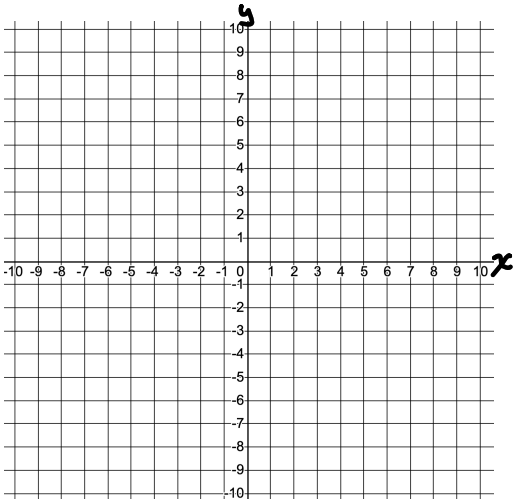
b) ℓ_1: $2x + y = 5$
ℓ_2: $x - 2y = 10$



c) ℓ_1: $2x + 5y = -20$
ℓ_2: $5x - 3y = -15$



d) ℓ_1: $y = 2x + 3$
ℓ_2: $y = 2x - 4$



e) ℓ_1: $x + y = 3$
ℓ_2: $2x + 2y = 6$