

Alg I 6.1 notes.notebook

6.1 Solving Systems by Graphing

System of equations: Two or more linear equations that use the same variables.

Solution of a system of linear equations: any ordered pair that makes all of the equations in the system true.

Examples of when systems might be used:

- Compare the distance and speed of two different cars to see when one car might catch up to the other car.
- Compare pricing plans of phone companies to see which is a better deal.
- Compare growth rates of different types of plants or animals to see when they might be the same height or weight.

1. Suppose one puppy weighs 5 pounds at birth and grows at a rate of 0.25 pound per month over the first several months. Another puppy weighs 4 pounds at birth and grows at a rate of 0.5 pound per month. After how many months will the puppies weigh the same amount?

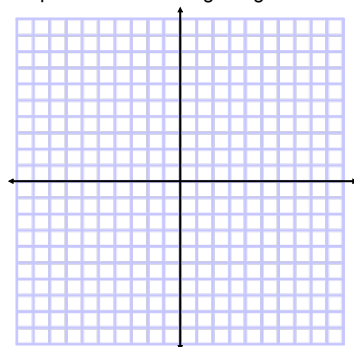
Step 1: Write the equations.

Step 2: find the slope and y-intercept for each equation.

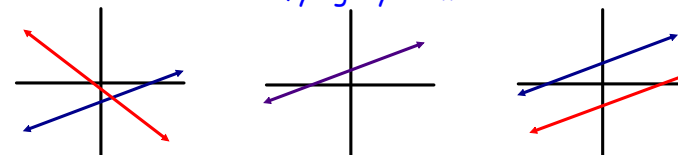
Step 3: Graph both lines on the same coordinate plane. Use a straightedge!

Step 4: The solution is the point where the two lines intersect.

After how many months will the puppies weigh the same?



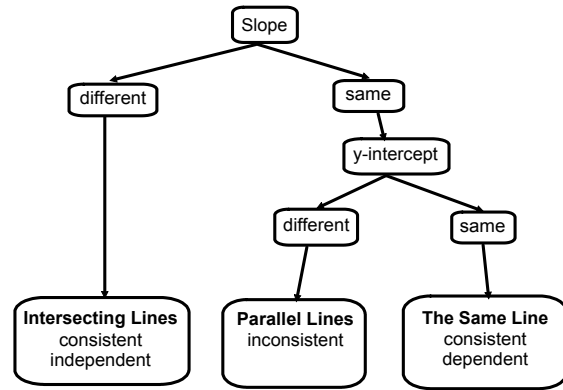
Classifying Systems



Exactly One Solution	Infinitely many solutions.	No Solutions
The lines intersect at one point.	The lines are the same - they are graphed on top of each other.	The lines are parallel.
consistent	consistent	inconsistent
independent	dependent	

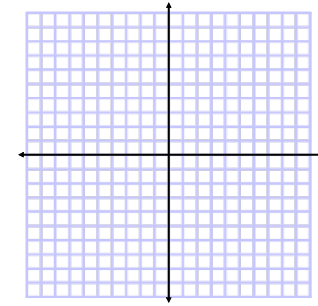
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Chart of Dependency and Consistency



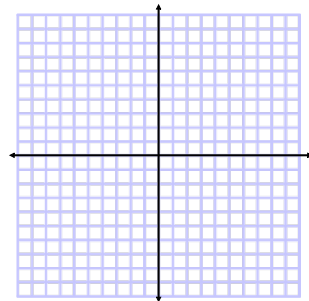
2. Solve the system by graphing.

$$\begin{cases} -4x - y = -1 \\ y - 2x = -5 \end{cases}$$



3. Solve the system by graphing. Tell whether the system has one solution, infinitely many solutions, or no solution.

$$\begin{cases} y = 2x - 1 \\ 3y = 6x - 5 \end{cases}$$



4. Solve the system. Tell whether the system has one solution, infinitely many solutions, or no solution.

$$\begin{cases} y - x = 5 \\ 3y = 3x + 15 \end{cases}$$

