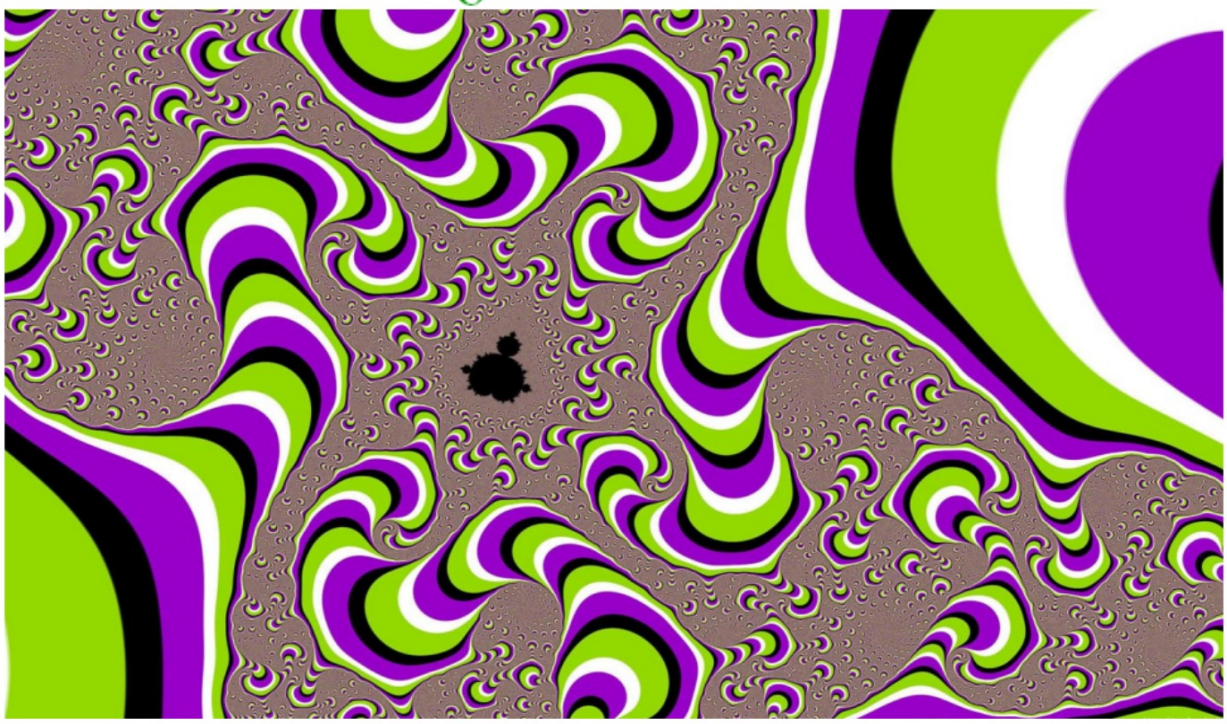
ALG1

March 8, 2012

Get out your Pink WS



17) $(3x+5y=-17)\cdot 2$

$10x-10y=-30$

$$\begin{array}{r} 6x+\cancel{10y}=-34 \\ +\ 10x-\cancel{10y}=-30 \\ \hline \frac{16x}{16} \quad =\frac{-64}{16} \end{array}$$

$x=-4$

$3(-4)+5y=-17$

$-12+5y=-17$

$+12 \qquad +12$

$\frac{5y}{5}=\frac{-5}{5}$

$y=-1$

$(-4,-1)$

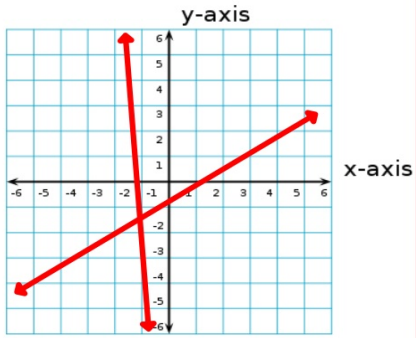
Steps:

1. Multiply BOTH equations by whatever it takes to make the coefficients on one variable opposites.
2. Add equations
3. Solve for the variable
4. Substitute into an equation with both variables
5. Solve for the variable
6. What's the point?

3/8 - Inconsistent Systems using Elimination

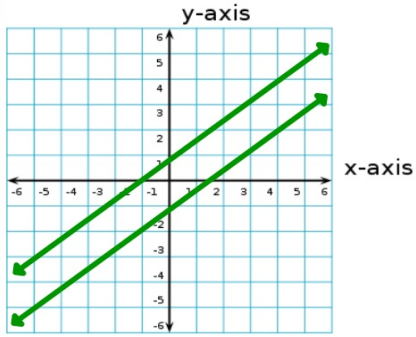
What has to happen in order to get each of these answers?

Intersecting



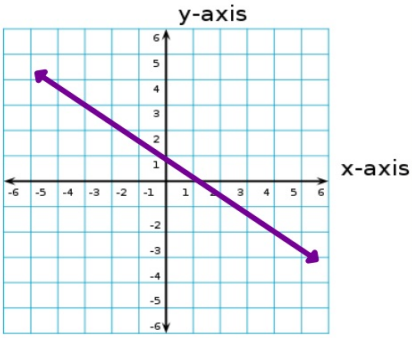
neither variable cancels

Parallel

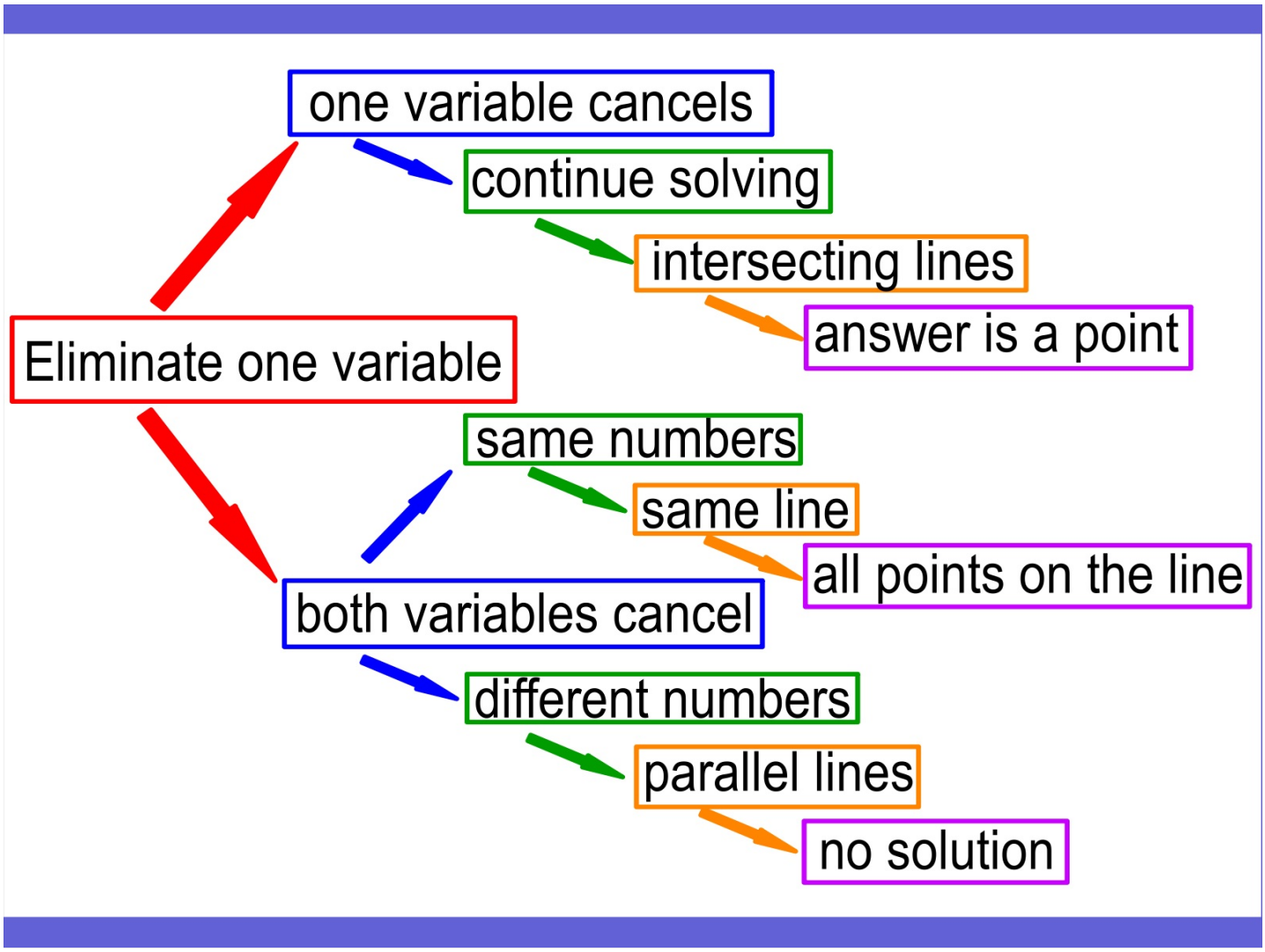


x + y cancel and the answers are different

Same Line



x + y cancel and the answers are the same


one variable cancels
continue solving
intersecting lines
answer is a point
Eliminate one variable
same numbers
same line
all points on the line
both variables cancel
different numbers
parallel lines
no solution

$$-3(4x - 8y = 12)$$
$$2(6x - 12y = 12)$$

$$\cancel{-12x} + \cancel{24y} = -36$$
$$\cancel{12x} - \cancel{24y} = 24$$

$$0 + 0 = -12$$

$$\emptyset$$

$$24x - 27y = -9$$

$$3\left(-8x + 9y = 3\right)$$

$$\begin{array}{r} 24x - 27y = -9 \\ -24x + 27y = 9 \\ \hline 0 + 0 = 0 \end{array}$$

all points on

$-8x + 9y = 3$

$$5\left(4x + 20y = -8\right)$$
$$2\left(-10x - 50y = 10\right)$$

$$\begin{array}{rl} & \cancel{20x} + \cancel{100y} = -40 \\ + & \cancel{-20x} - \cancel{100y} = 20 \\ \hline & 0 + 0 = -20 \end{array}$$

$$\emptyset$$

$$21 \cdot \left(-6x + 8y = 6\right) \div 2$$
$$6 \cdot \left(21x - 28y = -21\right) \div 7$$

$$\begin{array}{rl} & -3\cancel{x} + 4\cancel{y} = 3\cancel{} \\ + & 3\cancel{x} - 4\cancel{y} = -3\cancel{} \\ \hline & 0 + 0 = 0 \end{array}$$

all points

$-6x + 8y = 6$

$$5\,(6x - 9y = -6)$$
$$6\,(-5x - 2y = -14)$$

$$\cancel{30x} - 45y = -30$$
$$+\ -\cancel{30x} - 12y = -84$$

$$\frac{-57y}{-57} = \frac{-114}{-57}$$

$$y = 2$$

$$6x - 9(2) = -6$$

$$6x - 18 = -6$$
$$+18 \quad +18$$

$$\frac{6x}{6} = \frac{12}{6}$$

$$x = 2$$

$$(2, 2)$$

Homework

Lilac Systems WS10

Due Monday