Day 7

Solve the system by using the addition method. $3x = 2y - 5$, $2x + y = 6$

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

Step 1: Write both equations in standard form, $Ax + By = C$.

Step 2: Clear fractions or decimals (optional).

$3x-2y=-5 \rightarrow 3x-2y=-5$

$2(2x+y)=6(2) \rightarrow 4x+2y=12$

Step 3: Multiply one or both equations by nonzero constants to create opposite coefficients for one of the variables.

$7x=7$

$x=1$

Step 4: Add the equations from step 3.

Step 5: Solve for the remaining variable.

$2(1)+y=6$

$2+y=6$

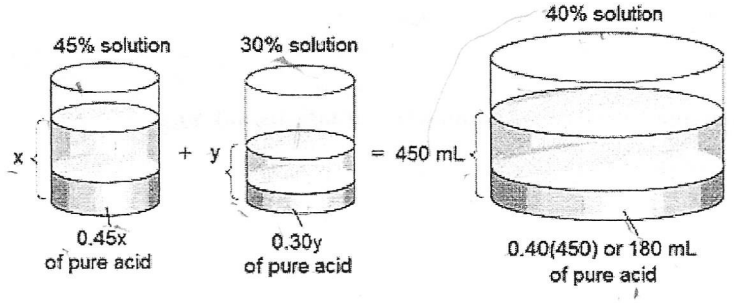
$y=4$

$(1,4)$

Step 6: Substitute the known value into one of the original equations.

Step 7: Check the ordered pair in both original equations.

How much 45% acid solution should be mixed with a 30% acid solution to make 450 mL of a 40% acid solution?



$x+y=450$

$.45x+.3y=180$

	45% acid	30% acid	40% acid
Amount of solution	x	y	450
Amount of pure acid	0.45x	0.30y	0.40(450) or 180

$x+y=450$

$100(.45x+.3y=180)100$

$x+y=450 \rightarrow y=450-x$

$45x+30y=18000$

$45x+30(450-x)=18000$

$45x+13500-30x=18000$

$15x=4500$

$x=300 \quad y=150$.