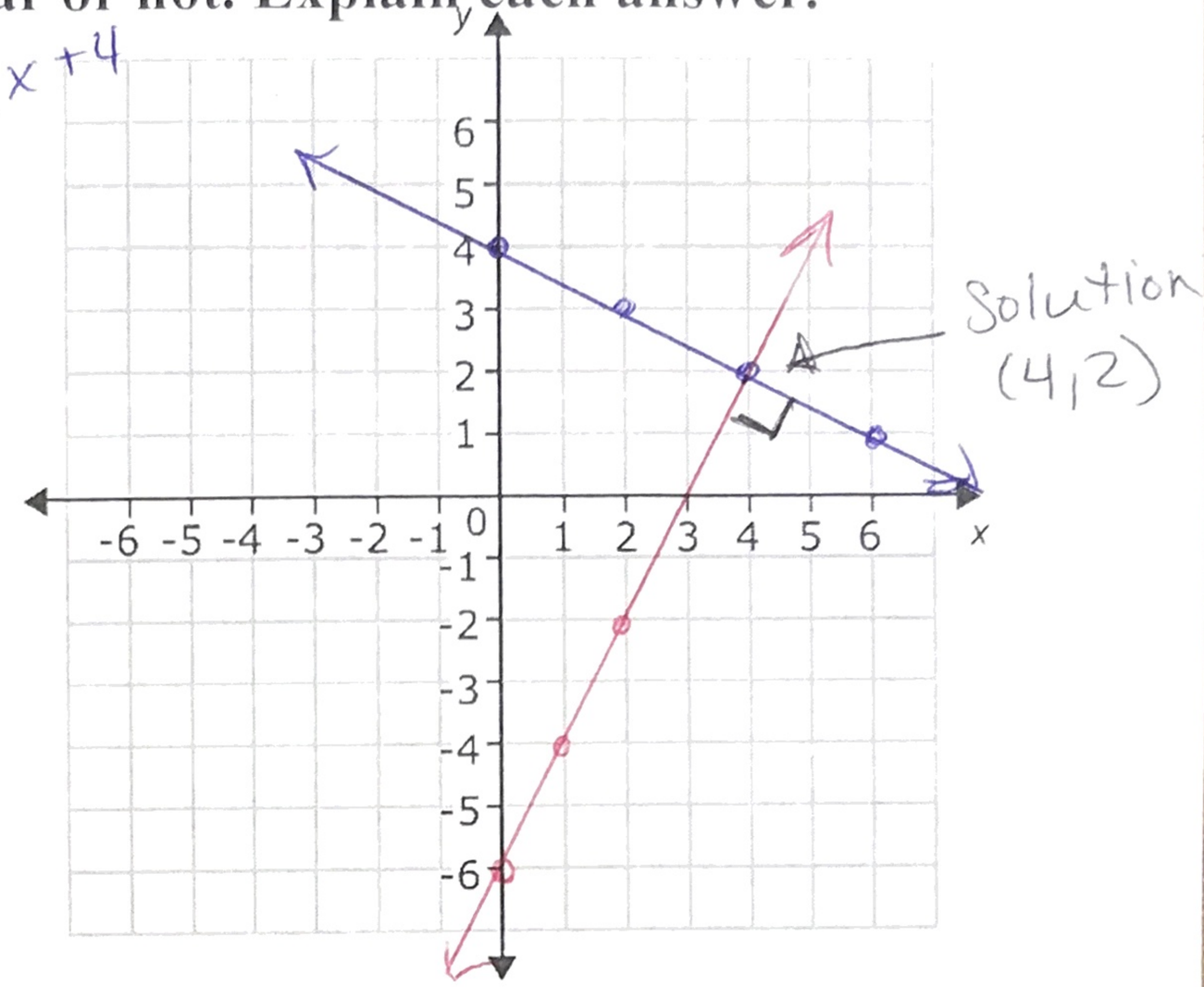
**Name:** _____ **Date**_____ **#40 Special Cases of Systems**

**For each system, get the two equations into slope intercept form.**

**Graph them, then tell if they have infinite, one, or no solutions. If it is one solution, tell if the lines are perpendicular or not. Explain each answer.**

1. $\begin{cases} x+2y=8 \\ y=2x-6 \end{cases}$

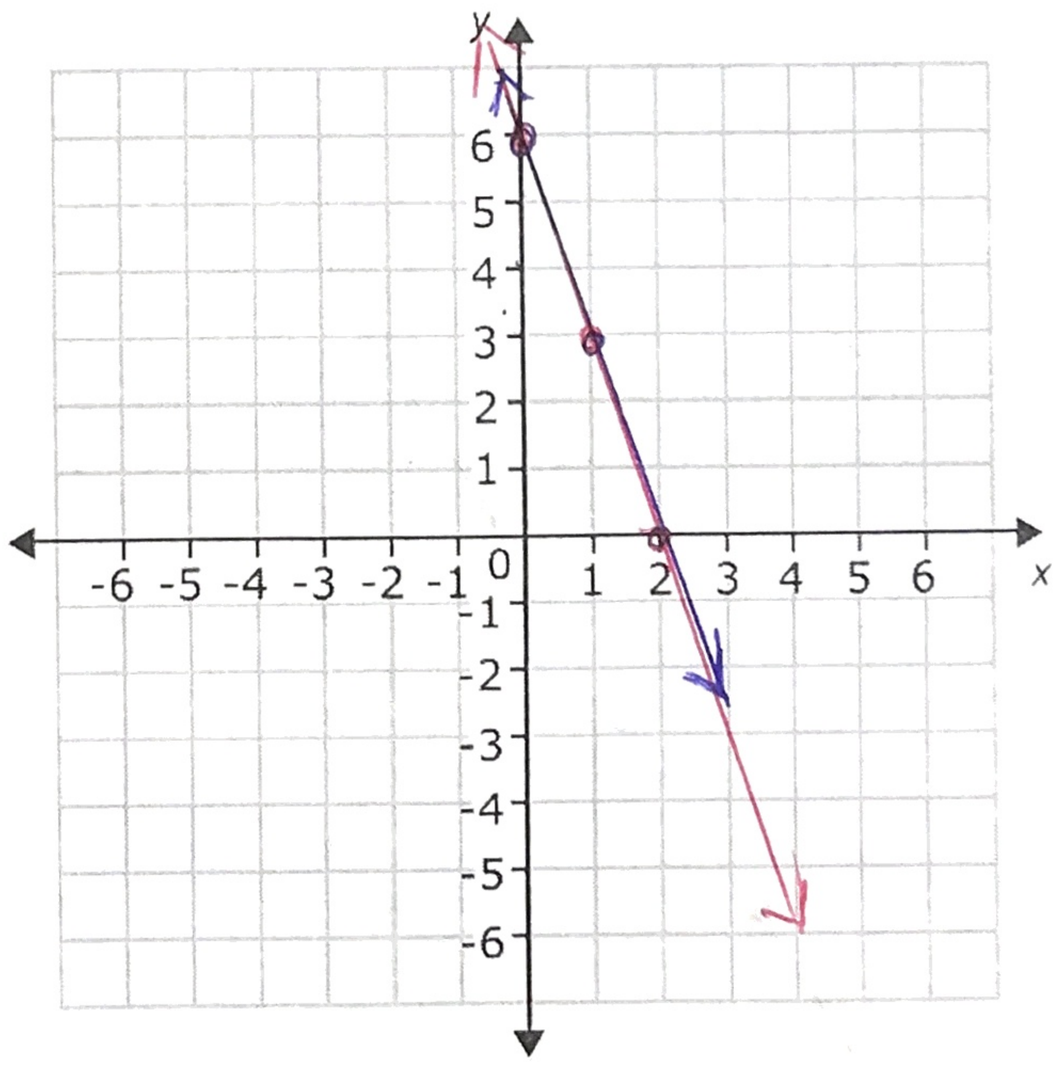
$\frac{2y}{2} = \frac{-x+8}{2}$ $y = -\frac{1}{2}x+4$




This has 1 sol'n b/c the slopes are different. The slopes are opposite reciprocals so the lines are ⊥.

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

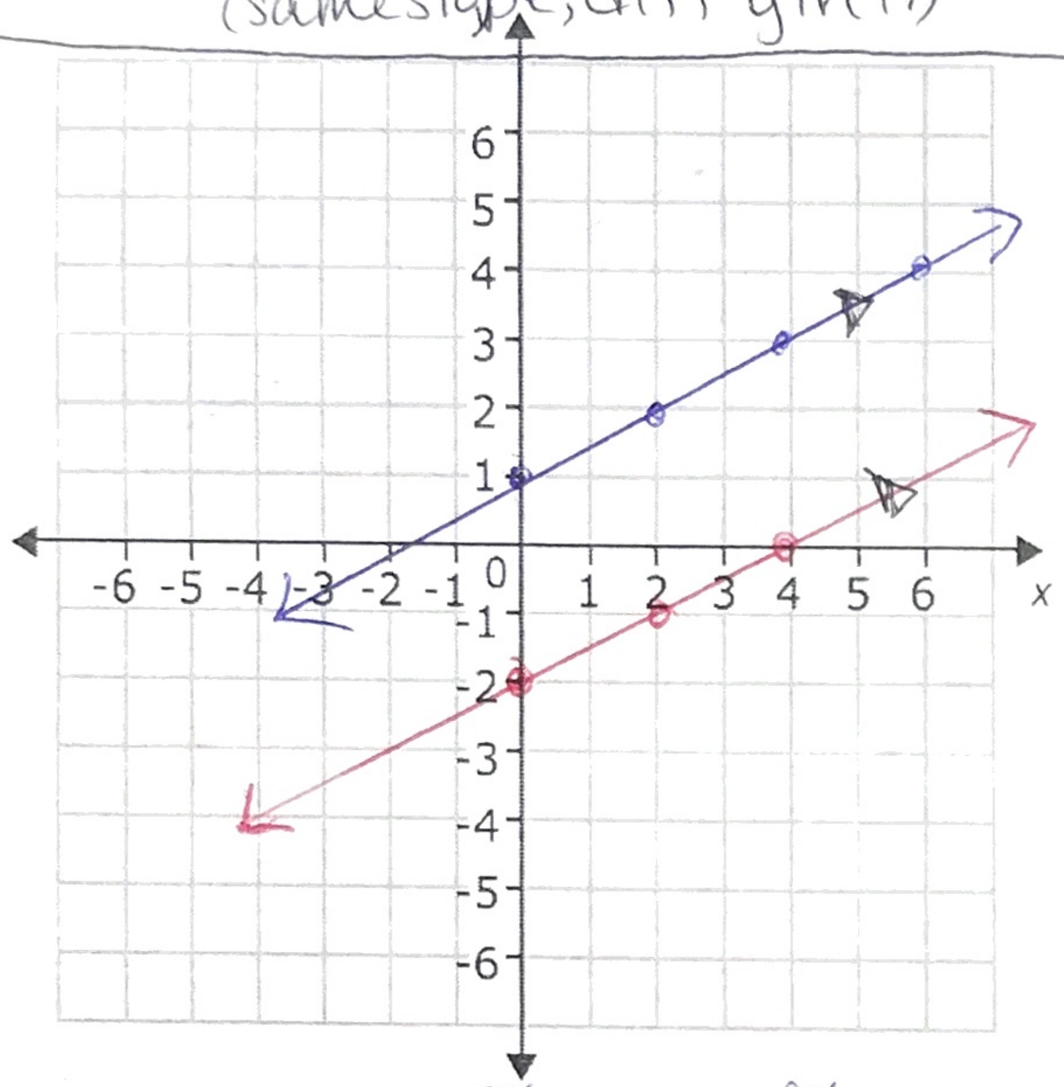
$y = -3x+6$




This has ∞ sol'n b/c they coincide. They have the same slope & y int.

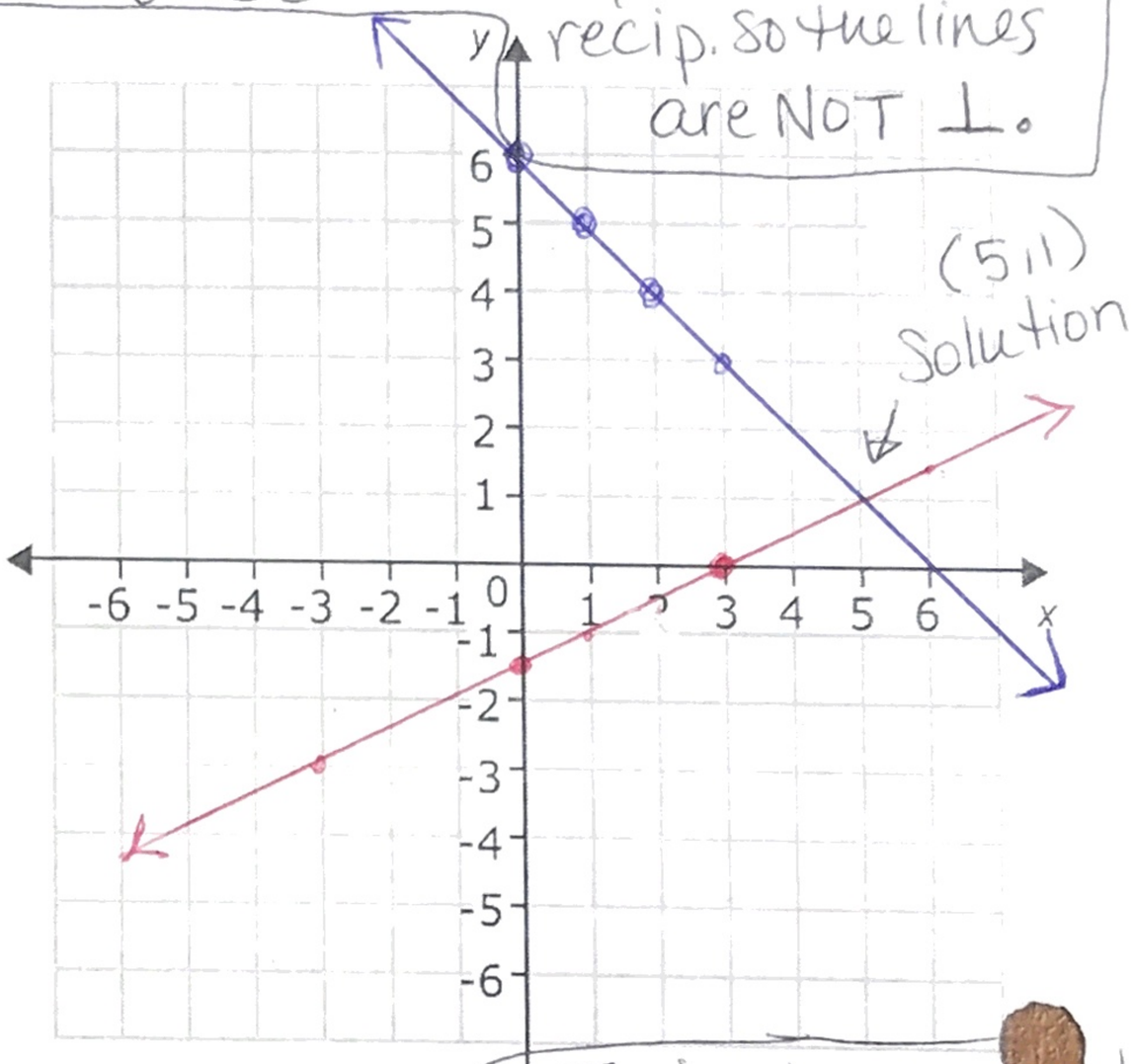
3. $\begin{cases} 2x+4=4y \\ -x+4=-2y \end{cases}$ $y=\frac{1}{2}x+1$ ; $y=\frac{1}{2}x-2$

This has $\emptyset$ b/c the lines are $\parallel$ (same slope, diff y int.)

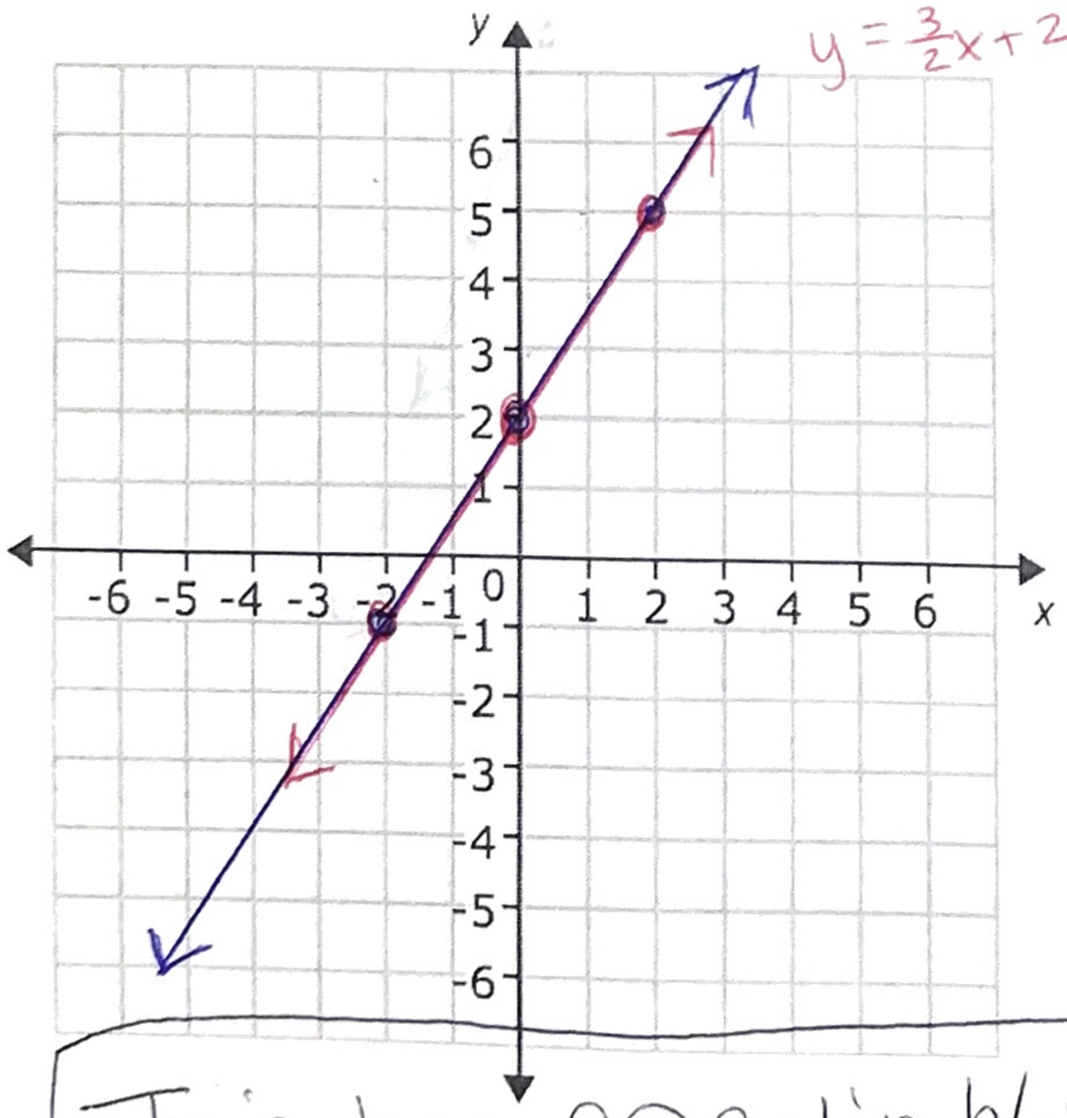


4. $\begin{cases} 2x+2y=12 \\ x=2y+3 \end{cases}$ $\frac{2y}{2}=\frac{-2x}{2}+\frac{12}{2}$ $y=-x+6$ ; $\frac{2y}{2}=\frac{x}{2}-\frac{3}{2}$ $y=\frac{1}{2}x-\frac{3}{2}$

This has 1 sol'n b/c the slopes are diff. They are NOT opp. recip. so the lines are NOT $\perp$.




5. $\begin{cases} -18x+12y=24 \\ 3x-2y=-4 \end{cases}$ $\frac{12y}{12}=\frac{18x}{12}+\frac{24}{12}$ $y=\frac{3}{2}x+2$ ; $\frac{-2y}{-2}=\frac{-3x}{-2}-\frac{4}{-2}$ $y=\frac{3}{2}x+2$



This has $\infty$ sol'n b/c the lines coincide. They have the same slope & y int.

6. $\begin{cases} y=3x+1 \\ y=3x-4 \end{cases}$

This has $\emptyset$ b/c these are $\parallel$ (same slope, diff. y int)