For problems **1 – 4**, use substitution to solve the system of equations. Check your solution.

1. $\begin{cases} 4x-2y=20 \\ x+y=2 \end{cases}$

$x+y=2$

$y=-x+2$

$4x-2(-x+2)=20$

$4x+2x-4=20$

$6x=24$

$x=4$

$x+y=2$

$(4)+y=2$

$y=-2$

The solution is $(4,-2)$

2. $\begin{cases} 5x-10y=15 \\ x=2y+3 \end{cases}$

$x=2y+3$

$5x-10y=15$

$5(2y+3)-10y=15$

$10y+15-10y=15$

$0=0$ *true*

infinite *solutions*

These two lines are coincident.

3. $\begin{cases} y=-2x-4 \\ y=x+5 \end{cases}$

$-2x-4=x+5$

$-3x=9$

$x=-3$

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

The solution is $(-3,2)$

4. $\begin{cases} y-3x=-94 \\ 32x-15y=955 \end{cases}$

$y-3x=-94$

$y=3x-94$

$32x-15y=955$

$32x-15(3x-94)=955$

$32x-45x+1410=955$

$-13x=-455$

$x=35$

$y-3(35)=-94$

$y-105=-94$

$y=11$

The solution is $(35,11)$