$$
\begin{aligned}
& y=\frac{1}{1} x-4 \\
& y=-\frac{4}{3} x+3 \\
& x+1+1+1+2, ~ \\
& x+1)
\end{aligned}
$$

$$
\text { 2) } \begin{aligned}
& 3 / x-5 y=-22 \\
&-6 x+2 y=25 \\
& \hline-3 y=\frac{3}{-3} \\
& y=-17 \\
& 3 x-5(-1)=-22 \\
& 3 x+5=-22 \\
&-5-5 \\
& \frac{3 x}{3}=\frac{-27}{3}
\end{aligned}
$$

4-4: Solving systems by Substitution
Objectives: I can solve a system by substitution and determine the number of solutions

I can verify a solution to a system
Vocabulary
Substitution: Plugging in things that
Ordered Par: $(x, y)$ pair oof are annual
Ordered Pair: $(x, y)$ Padirinof.

$$
\begin{aligned}
& y=7 x+2 \\
& x=3
\end{aligned}
$$

## Substitution

Substitue $x=2$ into the function $y=-4 x+3$

$$
\begin{aligned}
y & =-4(2)+3 \\
& =-8+3 \\
& =-5
\end{aligned}
$$

Solve the system by substitution:

$$
\begin{array}{lc}
\frac{y=(x-3)}{\frac{2 x+y=0}{2 x+(x-3)}=0} & \frac{3 x}{3}=\frac{3}{3} \\
2 x+x-3=0 & x=1 \\
3 x+3=0 & y=(1)-3 \\
+3+3 & y=-2
\end{array}
$$

Solve the system using Substitution
a) $3 x+y=-9$

$$
\begin{gathered}
\frac{y=2 x+1}{3 x+(2 x+1)}=-9 \\
3 x+2 x+1=-9 \\
5 x+1=-9 \\
-1-1
\end{gathered}
$$

$$
\begin{gathered}
\frac{5 x}{5}=\frac{-10}{5} \\
x=-2
\end{gathered}
$$

$$
3(-2)+y=-9
$$

$$
+6+y=-9
$$

$$
y=-3
$$

Example: Is $(1,3)$ a solution to the system

$$
\begin{aligned}
& y=2 x+1 \\
& 2(1)+1=3 \\
& y=-x+4 \\
& y=3 \\
& \begin{array}{l}
2 x+1=-x+4 \\
+x+\begin{array}{l}
+x
\end{array} \\
\hline 3 x \neq 1+-1
\end{array} \\
& \left.\begin{array}{rl}
x-2 & =2 x-1 \\
-2 x \quad-2 x
\end{array}\right] \begin{array}{c}
1 x-2=-1 \\
+2+2 \\
\frac{-x}{-1}=1 \quad x=-1
\end{array}
\end{aligned}
$$

