$\qquad$
$\qquad$ Hour $\qquad$
Section 3.2 - Substitution and Elimination
Solve the following systems by substitution.
$(3,-5)$

$$
\begin{aligned}
& \text { 1. } y=x-8 \\
& 3 x+y=4 \\
& \underbrace{3 x+x-8}=4 \\
& 4 x-8=4 \\
& 4 x=12 \\
& \begin{array}{rr}
\text { 2. } \left.\begin{array}{rl}
x=4 y & x=4(3) \\
x^{2}-y=9 & x=4(3) \\
4 y-y=9 \\
3 y=9 & x=12 \\
y=3 &
\end{array}\right)
\end{array}
\end{aligned}
$$

$(12,3)$

$$
\begin{array}{cc}
(9,-12) \\
3 \begin{array}{l}
y=-3-x \\
3 x+2 y \\
3 x+2(-3-x) \\
3 x+2 \\
3 x-6-2 x
\end{array} \\
x-6=3 \\
x=9
\end{array}
$$

$(-2,6) \begin{aligned} & 4 \\ & x+y=4 \\ & 3 x+y=0\end{aligned} \rightarrow y=4-x$

$$
\text { 4. } \begin{aligned}
& x+y=4 \\
& 3 x+v=0
\end{aligned} \rightarrow y=4-x
$$

Be sure to isolate a variable!!!!!

$$
\begin{aligned}
3 x+4-x & =0 \\
2 x+4 & =0 \\
2 x & =-4 \\
x & =-2
\end{aligned} \quad \begin{aligned}
3(-2)+y & =0 \\
-6+y & =0 \\
y & =6
\end{aligned}
$$

(1) isolate one of the variables
(2) substitute the expression into the other equation
(3) Solve the resulting equation
(4) plug back in and solve for the other variable

Solve the following systems by elimination. look for opposites

$$
\begin{gathered}
\left.(4,0) \quad \begin{array}{c}
5 .(4 x)+2 y=16 \\
+(2 x)-3 y=8) \\
6 x=24 \\
x=4
\end{array}\right) .
\end{gathered}
$$

$$
\begin{aligned}
2(4)-3 y & =8 \\
8-3 y & =8 \\
-8 y & =0 \\
y & =0
\end{aligned}
$$

$(2,0)$

$\operatorname{linen}_{7} 4 \mathrm{u}_{3}$ !
$(2,1)^{10}+5 x^{3 x+2 y=8}+12-5 x$
$+5 x$$\quad \begin{aligned}\left(\begin{array}{l}3 x+2 y=8) \cdot-1 \rightarrow-3 x-2 y\end{array}\right)=-8 \\ 5 x+2 y=12 \longrightarrow \begin{array}{ll}5 x+2 y & =12 \\ 2 x & =4\end{array}\end{aligned}$
$2 y=12-5(2)$

$$
x=2
$$

$$
2 y=12-10
$$

$$
2 y=2
$$

$$
y=1
$$

