## Warmup $11 / 2^{2^{2}}$

1. Find two points that would be on the graph of the equation $5 x+2 y=60$.

## Next Quiz...

# - Will be on MONDAY! Topics Covered: 

- Solving Systems by Graphing
- Solving Systems by Substitution (Today \& Tomorrow)

2. Early finishers: find as many MORE points as you can.
$(12,0)$
$(6,15)$
$(14,-5)$
$(4,20)$
$(0,30)$
$(10,5) \quad(2,25)$
$(8,10)$
(20, -20)
$(9,7.5)$

$$
(3,1.0)
$$

Another way to solve systems...

- Look at \#2 on your homework.

$2 x-8=-3 x+7$

Then solve...

- $x=3$ (Does this match your original answer?)
- How can we get $y$ ?

WHITEBOARDS

Solve the System of Equations using Substitution

$$
\begin{gathered}
x+y=10 \\
y=2
\end{gathered}
$$

$(8,2)$

Solve the System of Equations using
Solve the System of Equations using Substitution

$$
\begin{gathered}
5 x+5 y=10 \\
y=5
\end{gathered}
$$

$(15,5)$

$$
\begin{gathered}
y=x+100 \\
y=45
\end{gathered}
$$

$(-55,45)$

Solve the System of Equations using Substitution

$$
\begin{gathered}
3 x+10 y=20 \\
x=6
\end{gathered}
$$

$\left(6, \frac{1}{5}\right)$
Solve the System of Equations using Substitution

$$
4 x+y=24
$$

$$
y=2 x
$$

$$
\text { Now find } y \text { : }
$$

$$
4 x+y=24
$$

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

$$
4 x+2 x=24
$$

$$
y=2(4)
$$

$$
6 x=24
$$

$$
y=8
$$

$$
\begin{equation*}
x=4 \tag{4,8}
\end{equation*}
$$

## CHECK:

Solution: $(4,8)$

$$
\begin{aligned}
4 x+y & =24 \\
4(4)+8 & =24 \\
16+8 & =24 \\
24 & =24
\end{aligned}
$$

## Solve by Substitution:

$$
\begin{array}{cc}
2 x-y=15 \\
x=3 y \\
2 x-y=15 & \text { Now find } x: \\
2(3 y)-y=15 & x=3 y \\
6 y-y=15 & x=3(3) \\
5 y=15 & x=9 \\
y=3 & (9,3) \\
\hline
\end{array}
$$

## CHECK:

Solution: $(9,3)$
Substitution Strategy:

- If $y=$ (something) you can replace the $y$ from the other equation with the (something)
- Same with $\mathrm{x}=$ (something)

$$
\begin{array}{r}
2 x-y=15 \\
2(9)-3=15 \\
18-3=15 \\
15=15
\end{array}
$$

Solve by Substitution

$$
\begin{gathered}
6 x+4 y=8 \\
y=-2 x
\end{gathered}
$$

$(-4,8)$

Solve the System of Equations using Substitution

$$
\begin{aligned}
& y=2 x-21 \\
& y=5 x-3
\end{aligned}
$$

$(-6,-33)$

Solve by Substitution

$$
\begin{gathered}
x=5 y \\
-2 x+20 y=-10
\end{gathered}
$$

$(-5,-1)$

Harder?

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

$(2,1)$

Example 2:

$$
\begin{array}{cc}
x+2 y=2 & \\
y=x+4 & \\
x+2 y=2 & y=x+4 \\
x+2(x+4)=2 & y=-2+4 \\
x+2 x+8=2 & y=2 \\
3 x+8=2 & (-2,2)
\end{array}
$$

Whiteboard:

$$
\begin{gathered}
4 x-6 y=4 \\
x=2 y-5
\end{gathered}
$$

$(19,12)$

Whiteboard:

$$
\begin{gathered}
y=3 x+8 \\
8 x+4 y=22 \\
\left(-\frac{1}{2}, 6 \frac{1}{2}\right)
\end{gathered}
$$

$$
\cdot\left\{\begin{array}{c}
2 x-8 y=14 \\
x=4 y+2
\end{array}\right.
$$

NO SOLUTION!

## Story Problem

- Tommy and Chuckie have 60 bottles all together. Chuckie has 3 times as many bottles as Tommy. How many bottles do they each have?
- $\mathrm{T}+\mathrm{C}=60$
.**组 it: $\mathrm{T}=3 \mathrm{C}$ or $\mathrm{C}=3 \mathrm{~T}$ ??? Discuss.
$\cdot\left\{\begin{array}{cl}T+C=60 & \text { Tommy has } 15 \text { bottles, } \\ C=3 T & \text { Chuckie has } 45 \text { bottles }\end{array}\right.$


## Story Problem

- Phil and Lill have 42 pacifiers all together. Phil has 8 more pacifiers than Lill. How many pacifiers do they each have?

$$
\cdot\left\{\begin{array}{c}
P+L=42 \\
L+8=P
\end{array}\right.
$$

Phil has 25 pacifiers, Lill has 17 pacifiers

## Homework:

$$
\text { - p. } 247 \text { (1-10, 15) }
$$

- DUE ON FRIDAY!!!

