## Warmup 12/(The square root of Christmas)

***Make sure there is a whiteboard, marker, \& eraser in your desk. JUST ONE OF EACH.***

1. Find as many points as you can that would be on the graph of the equation $5 \mathrm{x}+\mathbf{2 y = 6 0}$.
$(12,0)$

$$
(6,15) \quad(14,-5) \quad(4,20)
$$

$(0,30)$

$$
\begin{array}{cl}
(10,5) & (2,25) \\
(20,-20) & (9,7.5)
\end{array}
$$

## Food privileges...

## Honors Math 8 Midterm

- Will be on Tuesday morning of the last week before break
- This is not a high school-credit class, so the midterm will NOT be worth $20 \%$ of your grade
- It will be worth the same as a normal test grade
- 50 questions multiple choice
- Students usually are excited to hear that it's multiple choice, but l'm just warning you - the scores are almost always lower on multiple choice
- This is for two major reasons:
- No partial credit
- Distractor answers


## Example: Find the slope

A: $\frac{2}{5}$
B: $\frac{5}{2}$
C: $-\frac{2}{5}$
D: $-\frac{5}{2}$


## Midterm Review Packet

- It is worth a big-ish grade, but THIS IS NOT THE MAIN PURPOSE OF IT!
- The purpose of the study assignment is to refresh your memory and understand the concepts.
- The more seriously you take this midterm review packet, the better you will do on the midterm!!!


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## Solving Systems by Substitution

Objective:
-Use a new strategy (substitution) to solve systems of equations. (No graphs, just pencil/paper)

## Solve by Substitution:

$$
\begin{gathered}
2 x-y=15 \\
x=3 y \\
2 x-y=15
\end{gathered}
$$

## CHECK:

Solution: $(9,3)$
$2 x-y=15$
2(9) $-3=15$
$18-3=15$
$15=15 \sqrt{ }$

## WHITEBOARDS

## Substitution Strategy:

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


## Solve by Substitution

$$
6 x+4 y=8
$$

$$
y=-2 x
$$

$$
(-4,8)
$$

## Harder?

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

$(2,1)$

# Solve the System of Equations using Substitution 

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

$$
(-6,-33)
$$

## Even harder?

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

## Example 2:

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

$$
x=-2
$$

-***IMPORTANT***

- When you substitute, always put what you are substituting in parentheses


## Whiteboard:

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

$$
(19,12)
$$

## Whiteboard:

$$
\begin{gathered}
y=3 x+8 \\
8 x+4 y=22
\end{gathered}
$$

$$
\left(-\frac{1}{2}, 6 \frac{1}{2}\right)
$$

## 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?
$\cdot T+C=60$
.$* * *$ IS IT: T $=3 C$ or $C=3 T ? ? ?$ Discuss.
$\left\{\begin{array}{c}T+C=60 \\ C=3 T\end{array}\right.$
Tommy has 15 bottles,
Chuckie has 45 bottles


## Using a bar diagram...

- Tommy and Chuckie have 60 bottles all together. Chuckie has 3 times as many bottles as Tommy. How many bottles do they each have?


$$
x+3 x=60
$$

## Story Problem

- Phil and Lil have 42 pacifiers all together. Phil has 8 more pacifiers than Lil. How many pacifiers do they each have?
$\left\{\begin{array}{c}P+L=42 \\ L+8=P\end{array}\right.$


## Phil has 25 pacifiers, Lill has 17 pacifiers

## Using a bar diagram...

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

Phil:

Lil:


$$
2 x+8=42
$$

42

Phil has 25 pacifiers, Lill has 17 pacifiers

## Story Problem if Time:

- Bowl-o-Rama charges $\$ 3$ per game plus $\$ 2$ for shoe rental, and Bowling Pinz charges $\$ 2$ per game plus $\$ 5$ for shoe rental. For how many games will the cost to bowl be the same at both places? What is the cost?



## Homework:

- p. 247 (1-10, 14, 15)

