**Created by Jonathan Hanks** 

# Warmup $\frac{12}{(\sqrt{18}^2 \div 2 - 2 \cdot 2) \cdot 2 + 2}$

\*\*\*Make sure you have a whiteboard, marker, and eraser inside your desk. ONLY ONE OF EACH. PUT EXTRAS BACK IN THE CABINET!\*\*\*

1) Find 2 (x, y) pairs that will work:

-4x + 2y = 24

2) Write down what you could multiply the equations by so that either x or y could be eliminated:  $(5x \pm 3y - 1)$ 

$$\begin{cases} 5x + 3y = -1 \\ 4x - 4y = 12 \end{cases}$$

3) (Early finisher) Solve the system from #2.

#### TEST FRIDAY ON SYSTEMS!!!

- Solving by Graphing

   Including equations in standard form
- Substitution
- Elimination
- Story Problems for each type

$$\begin{cases} 5x - 2y = 1\\ 4x + 4y = 12 \end{cases}$$

$$\begin{cases} 2(5x - 2y = 1) \\ 4x + 4y = 12 \end{cases} \rightarrow \frac{10x - 4y = 2}{4x + 4y = 12} \end{cases}$$

$$\begin{cases} 3x + 11y = -35 \\ -x + 3y = 5 \end{cases}$$

$$\begin{cases} 3x + 11y = -35 \\ 3(-x + 3y = 5) \end{cases} \rightarrow \begin{cases} 3x + 11y = -35 \\ -3x + 9y = 15 \end{cases}$$

$$\begin{cases} -4x + 2y = 18 \\ 12x - 2y = -34 \end{cases}$$

$$\begin{cases} 3x + y = 2\\ 3x - 2y = 32 \end{cases}$$

$$\begin{cases} 2(3x + y = 2) \\ 3x - 2y = 32 \end{cases} \xrightarrow{6x + 2y = 4} \\ 3x - 2y = 32 \end{cases}$$

$$\begin{cases} 3x + y = 2 & 3x + y = 2 \\ -1(3x - 2y = 32) & -3x + 2y = -32 \end{cases}$$

$$\begin{cases} x + 4y = 20 \\ x - 6y = 15 \end{cases}$$

$$\begin{cases} x + 4y = 20 \\ -1(x - 6y = 15) \end{cases} \Rightarrow \begin{cases} x + 4y = 20 \\ -x + 6y = -15 \end{cases}$$

$$\begin{cases} 2x + 4y = 8\\ -3x - 3y = -9 \end{cases}$$

$$\begin{cases} 3(2x+4y=8) \\ 2(-3x-3y=-9) \end{cases} \xrightarrow{6x+12y=24} \\ -6x-6y=-18 \end{cases}$$

$$\begin{cases} 5x + 2y = 8\\ 4x - 5y = 13 \end{cases}$$

$$\begin{cases} 5(5x+2y=8) \\ 2(4x-5y=13) \end{cases} \rightarrow \frac{25x+10y=40}{8x-10y=26} \end{cases}$$

### **Story Problem!**

- The sum of Nate & Anne's ages is 59. The difference of their ages is 5. Nate is older.
- a) Write a system of equations that represents this situation.
- b) Solve the system and say what the solution represents.

$$\begin{cases} N+A = 59\\ N-A = 5 \end{cases}$$

N = 32, A = 27

Nate is 32 years old, Anne is 27 years old

# Story problem

 Henry gets paid for doing chores. Last week, he did 2 loads of laundry and 3 loads of dishes, and his parents paid him \$12. The week before, he did 7 loads of laundry and 6 loads of dishes, and his parents paid him \$33. How much does Henry earn for doing each type of chore?

 $-2(2L + 3D = 12) \longrightarrow \begin{cases} -4L - 6D = -24 \\ 7L + 6D = 33 \end{cases} \xrightarrow{\phantom{aaaaaaa}} \begin{cases} -4L - 6D = -24 \\ 7L + 6D = 33 \\ 3L = 9 \end{cases}$ 

$$2(3) + 3D = 12$$
  
 $6 + 3D = 12$   
 $3D = 6$   
 $D = 2$ 

Doing the laundry is \$3, doing the dishes is \$2.

L = 3

# Story problem

There are 14 total people at the Easter gathering – adults and children. Each child found 4 Easter eggs and each adult found 3 Easter eggs. All together, 48 eggs were found. How many adults and children were at the gathering?

#### There were 6 children and 8 adults.

#### **DUETOMORROW:**

#### #7, 8, 9 on the homework

### Partner Activity: Sage & Scribe

- Similar to the "coaching" activity some of you did in 7<sup>th</sup> grade
- A **"sage"** is somebody who speaks & says wise things
- A "scribe" is somebody who transcribes (writes down) things that other people say.
- For each problem, the sage is the only one who can speak, and the scribe is the only one who can write.
- The scribe MUST do exactly what the sage says. At the very end of the problem, if the sage got stuck, the scribe is allowed to help them.
- YOU WILL SWITCH JOBS AFTER EVERY PROBLEM!