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Warmup 12/(The square root of Christmas)

NEED 2 WHITEBOARDS, MARKERS, ERASERS PER TABLE



ALEKS Progress Grade

- **SOME NOTES:**
- +6% 93

+7% - 100

- +5% 85
- +4% 75
- +3% 70
- +2% 60
- +1% 50

+0% - 0

- Some of you are currently on a knowledge check. You should finish this so that we can get an accurate read on where you are now.
- This grade does not count the last 30 minutes you are going to do. People on average gain about 1% progress in 30 minutes.

Correct front side of worksheet

- Write the correct answer in pen if you got it wrong.
- Part of tonight's homework: CORRECTIONS

Today's Objective

Master yesterday's topic – Elimination
 Solve STORY PROBLEMS using elimination

• You need opposite coefficients, such as:

-5x and 5x
3y and -3y
-x and x
Etc...

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

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

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

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

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

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

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

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

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

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

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

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

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



No Multiplying
(x+y=8)
(-x+5y=-20)

<u>Multiplying One</u>

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

Multiplying Both $\begin{cases} -5x + 3y = 7 \\ 4x - 4y = -12 \end{cases}$

(10, -2) (3, -6) (1, 4)

Story Problem!

- The sum of Nate & Anne's ages is 63. 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.

$$\begin{cases} N+A = 63\\ N-A = 5 \end{cases}$$

N = 34, A = 29

Nate is 34 years old, Anne is 29 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?

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

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.

HOMEWORK

- Correct front side of worksheet
- Do back side of worksheet