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ALGEBRA I BOOTY CAMP

Homework: Practice Problems in this Packet



Translating a phrase into a math sentence:

Example #1: Translate the sentence into an equation.

- a. 23 more than twice of a number is 6.

You practice: Translate the sentence into an equation.

1. Eight less than the quotient of a number and 4 is 2.

2. Twice the difference of a number and 5 equals 3.

3. Two times the sum of a number and 5 is 6.

4. The difference of a number times 8 and 5 is 6.

5. The total of two different numbers is 15.

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Example #2: Translate the sentence into an equation.

- a. The number of cheeseburgers sold was three times the number of hamburgers sold.

You practice: Translate the sentence into an equation.

1. There were 60 more student tickets sold than adult tickets.

2. The cost of the garden table is twice the cost of the bench.

3. Devon's age is six times Sydney's age.

4. We sold twice as many boxes of popcorn as cans of peanuts.

5. You bought a total of 15 one-gallon bottles of apple juice and orange juice.

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Example #3: Define variables for the unknowns. Write a system of equations that models the following situations but DO NOT SOLVE.

- a. A math test has a total of 25 problems. Some problems are worth 2 points and some problems are worth 3 points. The whole test is worth 63 points. How many 2-point problems are there?

You practice: Define variables for the unknowns. Write a system of equations that models the following situations but DO NOT SOLVE.

1. Tickets at a particular movie theater have different rates for adults and children. On Friday, the theater sold 4 adult tickets and 7 children tickets for \$83. The next day, the theater sold 5 adult tickets and 6 children tickets for \$90. What is the price for an adult ticket and the price for a children ticket?
2. You worked a total of 41 hours this week. Your housecleaning job pays \$5 an hour and your sales job pays \$8 an hour. You earned \$254 this week. How many hours did you work each job?
3. Math club is selling candy bars and candles to raise money for new calculators. Candy bars sell for \$3.50 and candles sell for \$8. The group sells \$483 in candy bars and candles, and they sell twice as many candy bars as candles. How many candy bars and candles did the Math club sell?
4. A gym offers two options for membership plans. Option A includes a one-time initiation fee of \$121 and costs \$1 per day. Option B has no initiation fee but costs \$12 per day. After how many days will the total costs of the gym membership plans be equal?
5. You bought a total of 18 one-gallon bottles of grape juice and cranberry juice for your club's year-end breakfast. The grape juice was on sale for \$2.50 per gallon bottle. The cranberry juice was \$3 per gallon bottle. You spent \$48.50. How many of each type of juice did you buy?

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Distribute, Distribute, Distribute!

Example #1: Simplify.

a. $-3w - (-3z + 5w) - 2z$

You practice: Simplify.

1. $5(-3w - 2x) - 2(x - 6w)$

2. $7w - 3(-5x + w) - 6x$

3. $-4x - (-3y + 7x) + 4y$

4. $-4w - 3(-6x + 6w) + 5x$

5. $-2(-4y - 2z) - 6(-7z - y)$

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Substitution:

Example #1: Solve the linear system using SUBSTITUTION.

a. $3x + 5y = -2$

$$4x + 2y = 20$$

STEP 1: Solve for a variable.

STEP 2: SUBSTITUE into the other equation – USING PARANTHESES!

STEP 3: SOLVE for one variable.

STEP 4: SUBSTITUE – USING PARANTHESES and SOLVE for the other variable.

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You practice: Solve the linear system using SUBSTITUTION.

1. $2x + y = 6$

$$7x - y = 3$$

2. $9x - 6 = -3y$

$$6x + 2y = 4$$

3. $5y = -3x - 2$

$$2x - 6y = -20$$

4. $2x + 3y = 13$

$$3 = 3x - y$$

5. $5x - 2 = -2y$

$$16 = 4x - 2y$$

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Elimination:

Example #1: Solve the linear system using ELIMINATION.

a. $3y = 4x + 4$

$$8x - 9y = 4$$

STEP 1: Put the equations in STANDARD FORM ($Ax + By = C$).

STEP 2: CHOOSE a variable (x or y) you want to ELIMINATE.

STEP 3: MATCH the coefficients in front of your chosen variable with OPPOSITE SIGNS by multiplying either OR both equations by a number – USING PARANTHESES!

STEP 4: ADD your two equations and SOLVE for the remaining variable.

STEP 5: SUBSTITUE – USING PARANTHESES and SOLVE for the other variable.

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You practice: Solve the linear system using ELIMINATION.

1. $-y = -6x + 8$

$$7x - y = 9$$

2. $2x + 5y = -2$

$$3x + 2y = 8$$

3. $2x + 5y = 14$

$$3x = 2y - 36$$

4. $-4x = 9 + 3y$

$$-7x - 4y = 12$$

5. $-7x + 13 = -5y$

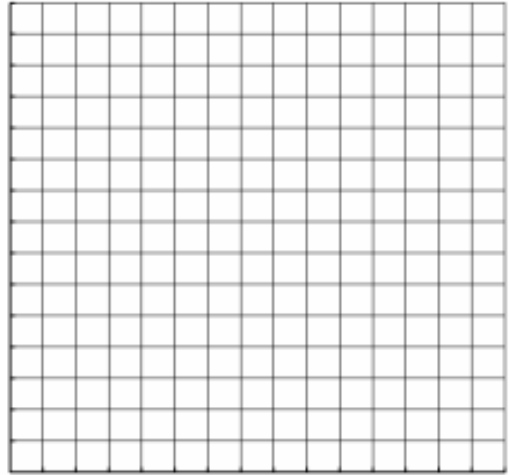
$$5x - 4y = 11$$

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Graphing a Linear System – Word Problems.

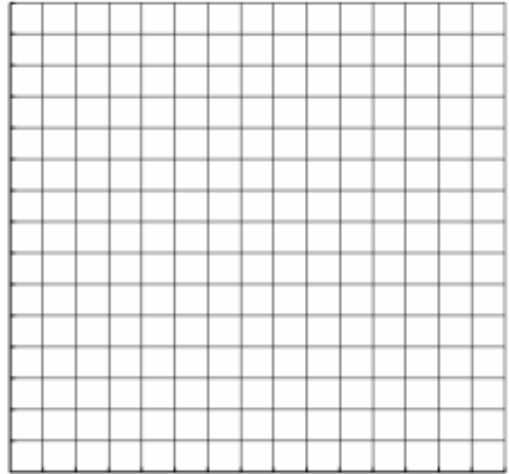
Example #1: Go back to Translation a phrase into a math sentence: Example #3 and graph your systems of equations you wrote.

a. Your system of equations:

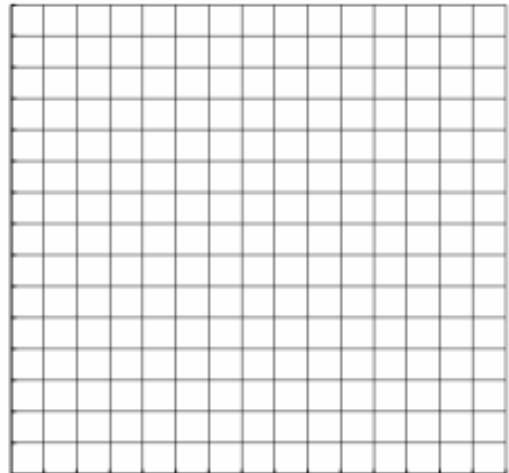


You practice: Go back to Translation a phrase into a math sentence: Example #3 and graph your systems of equations you wrote.

1. Your system of equations:

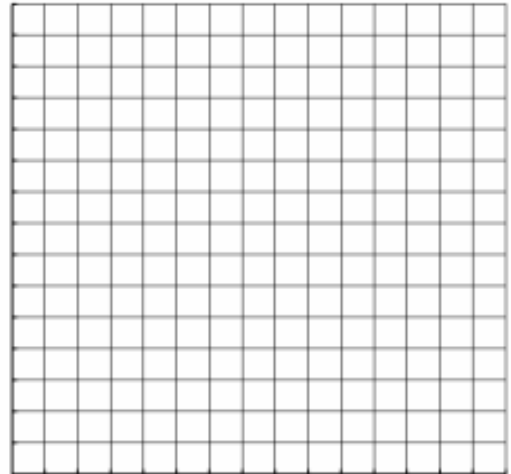


2. Your system of equations:

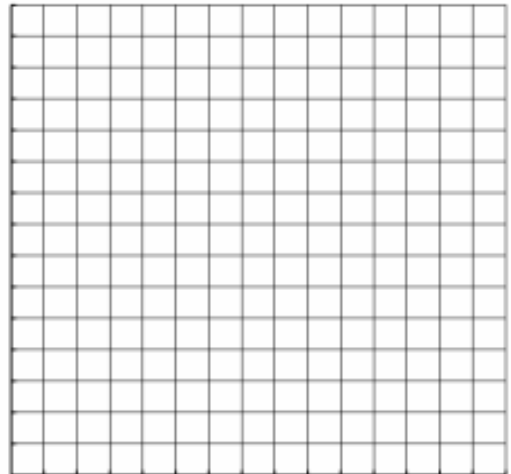


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3. Your system of equations:



4. Your system of equations:



5. Your system of equations:

