

Linear Systems

Graphing Linear Systems

Translating Words in Math

- a) Write the following phrase as a mathematical expression.

The value 12 decreased by a number.

- b) Write the following phrase as a mathematical equation.

Two thirds of a number increased by 5 is seven.

What is a Linear System?

A Linear System in two unknowns consists of two or more linear equations involving two variables.

Example:

$$2x + 3y = 8$$

$$5x - 2y = 1$$

What is a Solution to a Linear System?

A solution to a linear system is an ordered pair that satisfies all the equations in the system.

Example: The ordered pair $(1,2)$ is a solution to the previous linear system.

Translate Words into Algebra to Solve a Problem

Douglas wants to rent a super fast motorcycle. He researches different companies to find the best deal.

Company 1 charges \$50/day, plus \$0.12/km.

Company 2 charges \$40/day, plus \$0.20/km.

At what distance will the cost of renting a motorcycle be the same from both companies?

Solution

- a) Define your variables.
- b) Translate the words into algebra.
- c) Graph the two lines on the same grid.
- d) Label the POI
- e) Write a conclusion.

Practice Questions

Graph the following Linear Systems and find the coordinates of the POI. Check your solutions with Desmos:)

a) $y = x + 1$ and $y = -2x + 4$

b) $3x - 2y = -4$ and $-4x + 3y = 5$

Homework

Pg 17-19 # 3, 7, 8ad, 9ad, 10a, 11, 14

