

Solving Systems of Equations by Graphing Using Linear Regression

For each set of data, use the linear regression function on a graphing calculator to write a system of equations. Solve the system of equations by graphing. Explain what the x- and y- values of the solution represent for that situation.

Example 1: Census Populations of Detroit and San Diego 1960 - 2010

	1960	1970	1980	1990	2000	2010
Detroit	1,849,568	1,670,144	1,511,482	1,203,339	1,270,974	951,270
San Diego	334,387	573,224	696,769	875,538	1,110,549	1,223,400

Equation 1 (Detroit): _____

Equation 2 (San Diego): _____

Solution: _____

Explanation:

When were the populations the same? _____

What was the population at that time? _____

Example 2 – BPA Income and Expenses for Semester 1

MONTH	INCOME	EXPENSES
January	\$150	\$2,140
February	\$350	\$1,880
March	\$550	\$1,620
April	\$750	\$1,360

Equation 1 (Income): _____

Equation 2 (Expenses): _____

Solution: _____

Explanation:

In what month will the income and expenses be the same? _____

What is the dollar amount when they break even? _____

Example 3

Year	School A	School B
2011	628	432
2012	632	436
2013	627	461
2014	621	477
2015	615	488
2016	612	498

Equation 1 (School A): _____

Equation 2 (School B): _____

Solution: _____

Explanation:

When can the schools expect to have the same enrollment? _____

What will the enrollment be? _____

Example 4

You and a friend start a typing class at the same time. You measure your speed weekly in words per minute (WPM). The data is recorded in the table below.

# of Weeks	0	1	2	3
Your WPM	13	16	19	22
Your Friend's WPM	20	22	24	26

Equation 1 (Your WPM): _____

Equation 2 (Your Friend's WPM): _____

Solution: _____

Explanation:

After how many weeks can you expect to type as quickly as your friend? _____

What will the WPM be at that time? _____