Systems of Linear Equations and Inequalities

INTRODUCTORY ALGEBRA CH 4 - INTERMEDIATE ALGEBRA CH 4

See more: http://www.mathsisfun.com/definitions/index.html

System of linear equations consists of **two or more linear equations** with the same variables.

Solution of a system is an ordered pair that makes all the equations of the system **true** at the same time.

Solution set of systems is the set of all ordered pairs that are a solution of a system.

Consistent systems with **one solution have lines with different slopes. It is** a system of equations with at least one solution.

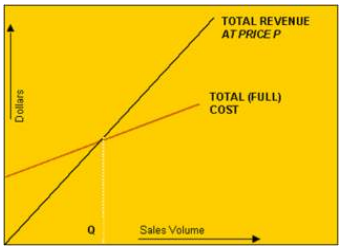
Inconsistent systems have lines with **equal slopes, but different y-intercepts**. It is a system of equations with no solution.

Independent equations Equations of a system that have **different graphs** are independent equations.

Dependent systems have lines with **equal slopes and equal y-intercepts**. It is that equations of a system that have the same graph (because they are different forms of the same equation) are dependent equations.

See more: http://www.mathsisfun.com/whole-numbers.html

Break-even-point at which total **cost** and total **revenue** are **equal**.



Revenue is the **income** that a business has from its normal business activities, usually from the **sale of goods** and **services to customers**. **Revenue** is also referred to as **sales** or **turnover**.

Cost is the price paid to acquire, produce, accomplish, or maintain anything.

Intermediate Algebra and Precalculus- Additional Terms and formula

Also, study Introductory vocabulary

Matrix

Linear systems are a collection of linear equations.

A matrix is very useful when solving a system of equations.

One of the simplest, most unique operations you can perform with a matrix is called **the determinant**.

Matrices are grids of numbers that are surrounded by brackets, a kind of squared-off parentheses.

matrices are labeled by their number of rows and columns, so we call a matrix an M x N matrix, where M is the number of rows and N is the number of columns.

(**3 x 5**) matrix, because it has **3 rows** and **5 columns** of numbers which is a total of 15 numbers inside.

When the number of rows and columns are the same, we end up with a **square matrix such as 1x1 or 2x2 or 3X3**. it is any matrix that is **N x N.**

As long as it is a square matrix, the determinant of any matrix is simply a number.

the determinant of a 2x2 matrix starts with a process that involves multiplying the diagonals and subtracting the products. We start with the top left to bottom right diagonal.
|-1 5|
|-4 3|

Here we would do (-1)(3) - (-4)(5)
Be careful when you subtract a negative. , since it changes the sign.
= -3 + 20 = 17.

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PreCalculus - Additional Terms and formula

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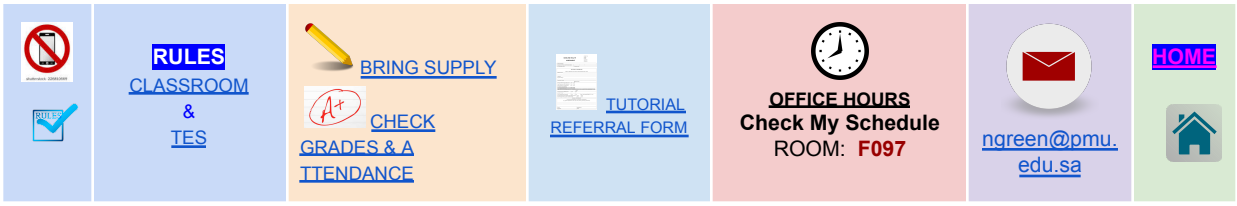

Sample Test Your Word Power

*For each blank, **write the respective number** of the word or expression from the given list below at will correctly complete the definition or statement:*

1. A system of linear equations consists of

A. At least two linear equations with different variables
B. Two or more linear equations that have an infinite number of solutions
C. Two or more linear equations with the same variables
D. Two or more linear inequalities

2. A solution of a system of linear equations is

A. An ordered pair that makes one equation of the system true
B. An ordered pair that makes all the equations of the system true at the same time
C. Any ordered pair that makes one or the other or both equations of the system true
D. The set of values that make all the equations of the system false

3. A consistent system is a system of equations

A. With at least one solution
B. With no solution
C. With an infinite number of solutions
D. That have the same graph

4. An inconsistent system is a system of equations

A. With one solution
B. With no solution
C. With an infinite number of solutions
D. That have the same graph

5. Dependent equations

A. Have different graphs
B. Have no solution
C. Have one solution
D. Are different forms of the same equation

Sample Test Your Word Power Answer

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Select the answer that best completes the given statement.

A company has a graph that shows the money it generates by selling x units of its product. It also has a graph that shows its cost of producing x units of its product. The point of intersection of these graphs is called the company's (1) _____

(1)

best point.

equilibration point.

break-even point.

balance point.

The equations in this system are called (1) _____

If the system is solved by graphing, two lines that (2)_____ will be obtained.

(1)	(2)
consistent.	are identical (or coincide)
dependent.	are parallel
Inconsistent.	are perpendicular

A solution to a system of linear equations in two variables is an ordered pair that (1) _____

(1)

satisfies an equation in the system.

does not satisfy either equations in the system.

satisfies both equations in the system.

Explain how to solve a system of equations using graphing.
Choose the correct answer below.

A. To solve a system of linear equations by graphing, graph both equations in the same rectangular coordinate system. For a system with one solution, the coordinates of the point of intersection of the lines is the system's solution.

B. To solve a system of linear equations by graphing, solve either of the equations for one variable in terms of the other. Substitute the expression into the other equation. Solve the resulting equation containing one variable. Back-substitute the value found into one of the original equations.

C. To solve a system of linear equations by graphing, graph both equations in the same rectangular coordinate system. For a system with one solution, the y-coordinates of the y-intercept of each line is the system's solution.

A few years ago, a total of 2679 thousand people lived in the metropolitan areas of Las Vegas, Nevada, and Sacramento, California. Sacramento had 279 thousand more residents than Las Vegas. What was the population of each metropolitan area? What was the population of the Sacramento area? _____thousand

What was the population of the Las Vegas area?_____thousand

Fill in the blanks.

A company's (1) _____function is the money generated by selling x units of its product. The difference between this function and the company's cost function is called its (2) _____function.

(1)	(2)
revenue	revenue
fixed cost	fixed cost
profit	profit

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