

MFM2P – Course Review

Unit 3: Equations of Lines

The Basics

Equation

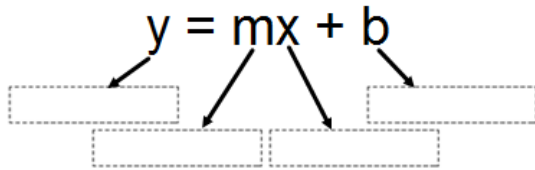


Table of Values

Time	Distance
0	0
1	120
2	240
3	360
4	480

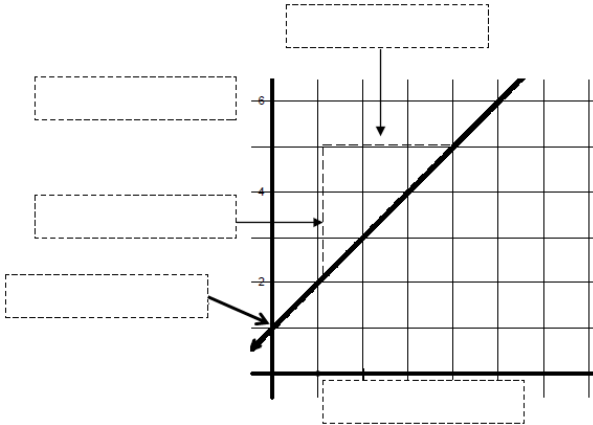
Diagram showing a table of values with arrows pointing to each cell and corresponding empty boxes for labels:

- Time points to a box.
- Distance points to a box.
- 0 points to a box.
- 120 points to a box.
- 240 points to a box.
- 360 points to a box.
- 480 points to a box.

Below the table, there is a fraction template:

$$\frac{\text{[]}}{\text{[]}} = \frac{\text{[]}}{\text{[]}}$$

Graph



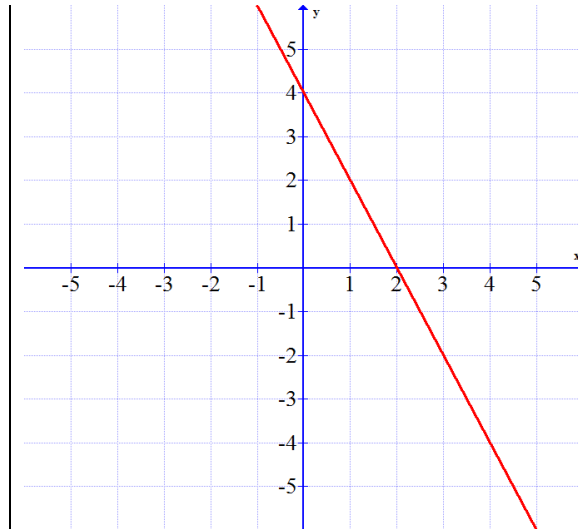
Determining Equations from Tables and Graphs

To determine the equation of a line in $y = mx + b$ form from a graph or table, you must first determine the _____ or _____ of _____ using the _____ and the _____; this is your m in the equation.

Next, you must determine the _____, also known as the _____. It is the value of the dependent variable (often y) when the independent variable (often x) is zero; this is your b in the equation.

Examples: Determine the equations of the lines represented in table and graph form below.

x	y
0	-15
4	-7
8	1
12	9
16	17
20	25



Determining Equations Given Two Points (x_1, y_1) and (x_2, y_2)

1. Determine the slope of the line (m), using the equation: $m = \frac{y_2 - y_1}{x_2 - x_1}$
2. Determine the y-intercept of the line (b), by plugging the slope (m) and a point (x, y) into $y = mx + b$ and solving for b .

Example

Determine the equation of the line through the points $(-1, 4)$ and $(4, -6)$.

Rearranging Standard Form Equations into $y = mx + b$ Form

Sometimes we are given equations in standard form ($Ax + By = C$) and we need to rearrange them into $y = mx + b$ form in order to graph. Basically, we need to isolate or rearrange for y .

Example

Rearrange $6x + 3y = 9$ into $y = mx + b$ form.

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Unit 4: Linear Systems

The Basics

A linear system is simply two _____ considered at the same time. The solution to a linear system is the _____ where the two lines meet, often referred to as the _____.

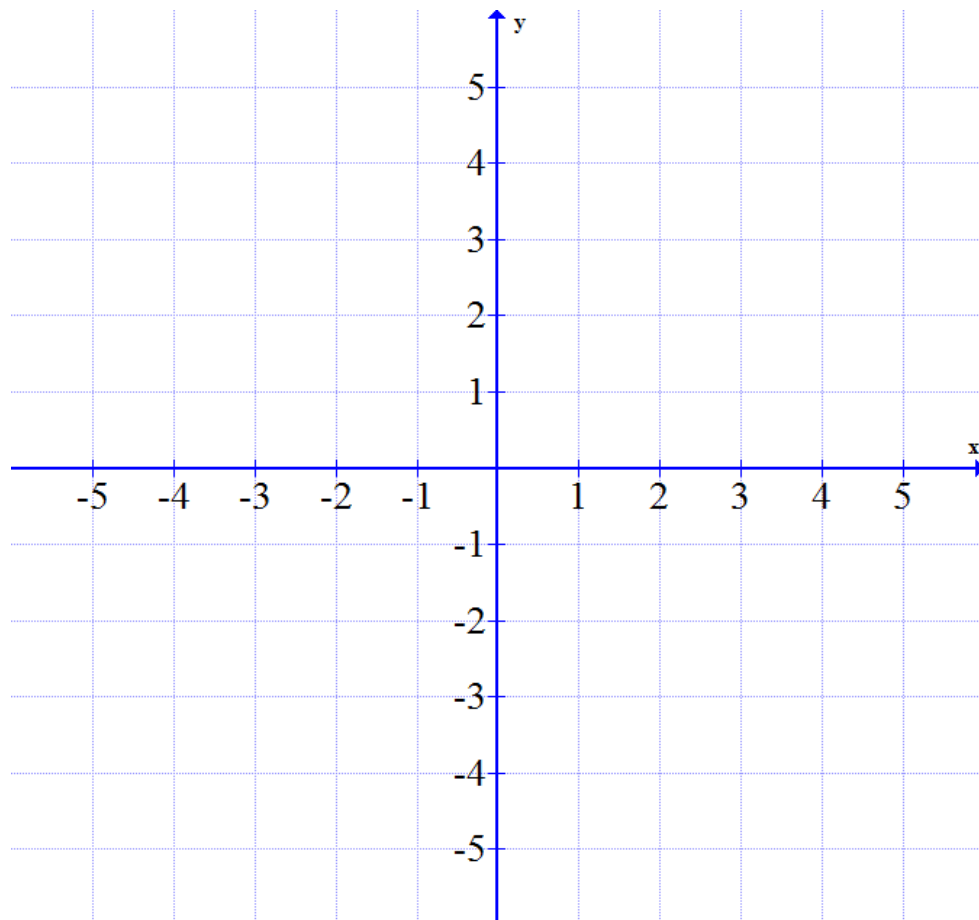
We can solve linear systems by graphing or by _____.

Solving by Graphing

To solve by graphing, graph both lines and find the point where the lines intersect. This point of intersection is the solution to the linear system.

Example: Solve the linear system below by graphing.

$$y = 3x - 3 \text{ and } y = -x + 5$$



Solving by Substitution

To solve by substitution, ensure the equations are both written in terms of the same variable, set them equal and solve for one variable. Then substitute the value you find into either equation to solve for the other variable.

Example: Solve the linear system below by substitution.

$$E = 8h + 30 \text{ and } E = 10h + 20$$