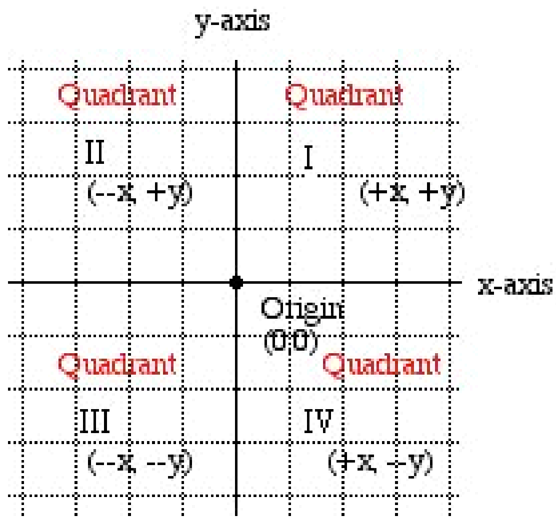
MATH 1000 Practice Vocabulary for Unit 3 Otts

Cartesian Coordinate System (aka__1__) is a horizontal number line (the ___2__-axis) intersecting with a vertical number line (the ___3__-axis) at right angles at the zero coordinates of each line (the ___4__).



Quadrants are the four areas of the Cartesian coordinate system formed by the ___5__ number lines. Quadrants are designated by ___6___ numerals from I to IV beginning in the upper right and proceeding counterclockwise.

x-axis is the ___7__ number line. From 0 to the left is ___8___, from 0 to the right is ___9___.

y-axis is the ___10___ number line. From 0 down is ___11___, from 0 up is ___12___.

The **Origin** is the intersection of the two ___13___ at their zeros, thus its coordinates are (_14a_,_14b_).

A **Point** is any __15__ on the Cartesian coordinate system. Every point has a __16__ and a __17__ component that establish its position on the coordinate plane in relation to the __18__.

An **Ordered Pair** is the pair of __19__ that specify the location of a __20__ on the coordinate plane in relation to the Origin. The ordered pair gives the __21__ to the point from the Origin. __22__ means that the x-coordinate ALWAYS comes first and the y-coordinate ALWAYS comes second, separated by a __23__: (x, y).

The **x-coordinate** gives the __24__ and __25__ of the point from the origin along the __26__ number line, the x-axis. The x-coordinate will ALWAYS be listed __27__ in an ordered pair.

The **y-coordinate** gives the distance and direction of the point from the origin along the __28__ number line, the y-axis. The y-coordinate will ALWAYS be listed __29__ in an ordered pair.

Plot: to locate a __30__ on the coordinate system starting at the origin and using the ordered pair of __31__, first x then y.

linear equation: an equation in one or more __32__ in which no exponent has a power other than __33__. Called linear because the graph of a linear equation in two variables is a __34__.

The **Standard Form** of a Linear equation in two variables is: ax + by = c, where a, b, and c are __35__ Numbers and x and y are __36__ in __37__ order.
Ex: $3x - 2y = 18$

The **Solution of a linear equation** in two variables is the set of all __38a&b__ that satisfy (make a __39__ statement of) the equation. When we try to graph all the ordered pairs, we will get a __40__.

To graph a line: using one of three methods, establish two or more points on the line and draw the line through those points. Lines on the coordinate system are __41__ and extend to __42__ in both directions.

Three Methods to graph a line:

1. __43__ (aka the Pick Three method).
2. __44__:
3. __45__:

The graph of a line: the __46__ of the solution set of a linear equation in two variables on the coordinate system.

An ordered pair is **on the line** when its coordinates are a __47__ to the equation. To find out, __48__ the x-coordinate for the variable __49__ and the y-coordinate for the variable __50__ and simplify. If the statement is true, then the point is on the line. This is the same as

__51__ to see if the numbers are solutions.

Intercepts: the point where the line __52__ one of the axes. The name of the intercept specifies which axis is crossed and which coordinate will probably have a value other than 0. The only time both coordinates are __53__ is when the line intercepts the __54__.

The **x-intercept** is where the line crosses the __55__-axis and has coordinates (_56a_, _56b_).
The name is the **x-intercept** so we are looking for a value for the __57__-coordinate and the y-coordinate is __58__ 0.

The **y-intercept** is where the line crosses the __59__-axis and has coordinates (_59a_, _59b_).
The name is the **y-intercept** so we are looking for a value for the __60__-coordinate and the x-coordinate is ALWAYS __61__.

Slope: the __62__ in the y-coordinates between two points on the same line __63__ by the change in the x-coordinates of the __64__ two points. We use the letter m to represent slope because it is __64__.
The slope tells us the __65__ of Change between points on the same line.
It also gives __66__ from a point on a line to another point on the same line.
The slope is often referred to as the **Rise** over the **Run**.

Rise: the __67__ in the y-coordinates between two points on the same line, usually written as $y_2 - y_1$.

Run: the __68__ in the x-coordinates between two points on the same line, usually written as $x_2 - x_1$.

Slope - Intercept Equation: y = __69__x + __70__

__71__ is the __72__ and __73__ is the y-coordinate of the __74__-intercept (0, b)

Two lines graphed on the same set of axes will be **parallel, perpendicular**, or **neither**.

Parallel lines have the same __75__ and different __76__.

Perpendicular lines intersect at __77__ angles and their slopes are __78a__ __78b__ reciprocals (product is a negative 1)

If not parallel or perpendicular, then **neither**. This means the two equations could be graphed with the __79__ line or their intersection does not form __80__ angles.

The graph of a linear equation will be one of four possible lines:
Rising line: line slants __81__ from left to right on the graph. The slope is ALWAYS __82__. IS a function.

Falling line: line slants __83__ from left to right on the graph. The slope is ALWAYS __84__. IS a function.

Horizontal line: line is straight across the graph from left to right, neither rising nor falling. The slope is ALWAYS __85__, or __86__ slope. IS a function.

Vertical line: line is straight up and down the graph. The slope is ALWAYS __87__ (see Division Involving Zero). __88__ a function!!

Point - Slope Equation Form: $y - y_1 = m(x - x_1)$ or

$y = m(x - x_1) + y_1$

When we know the __89__, m, and the __90__ of a point (x_1, y_1), we can use the Point - Slope form to write the equation, usually in slope – intercept form ($y = mx + b$).

Input: the value typed in or used for __91__ in the expression or function being __92__.

Output: the __93__ value, Y1 on the graphing calculator, of the expression or function using the input value.

function: a special case of mathematical statement where an __94__ is matched to only one __95__.

function notation: $f(x) = ax + b$

f is the __96__ of the function

x tells us what value to __97__ for the variable
ax + b (an __98__, just like in Unit 1) tells us how to calculate the value of the function (__99__ the function for the given value)
x is the __100__, the calculated value of $f(x)$ is the __101__.

domain of a function: the set of all values that may be __102__ to the function. All the numbers that are __103__ to be used for the input variable, usually x. All the numbers that are allowed to __105__ x.

range of a function: the set of all of the possible values that will result from __106__ the function for an __107__. All the possible __109__ of the function. What we get when we replace x and evaluate to find __*110*__.

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