Lesson: Two Variable Equations

Vocabulary:

linear equation: an algebraic equation in which each term is either a _____ or the _____ of a_____ and (the first power of) a _____ variable. _____ equations can have _____ or _____ variables.

independent variable: It is a _____ that stands alone and isn't _____ by the other _____ you are trying to measure. For example, someone's _____ might be an independent variable.

dependent variable: A dependent variable is what you _____ in the experiment and what is _____ during the experiment. The dependent variable _____ to the _____ variable. It is called _____ because it "depends" on the independent _____.

Slope and Rate of Change: The word slope (gradient, incline, pitch) is used to describe the measurement of the _____ of a _____ line. The _____ the slope, the _____ the line. The _____ of a line is a _____ of _____.

y-intercept: is a _____ where the _____ of an _____ intersects with the _____ of the coordinate system. These points satisfy _____.

x-intercept: is a _____ where the _____ of an _____ __ intersects with the _____. These points satisfy _____.

Multiple Representations of a Linear Relationship

Equation

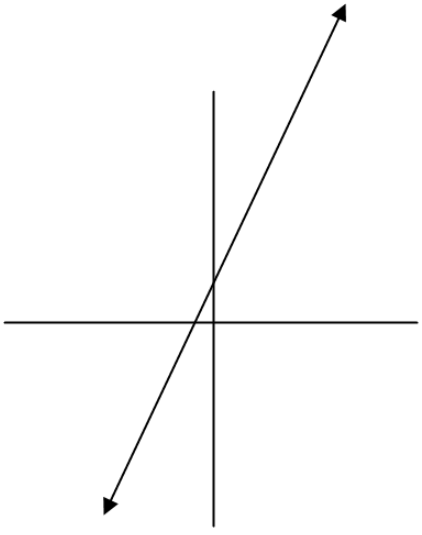
$$y = 2x + 1$$

$$y - 3 = 2(x - 1)$$

Table

X	Y
-2	-3
-1	-1
0	1
1	3
2	5
3	7

Graph



Given the following equation, **y = 4x + 3**,
create a table of values that is representative
of that equation.

x	y

Given the following equation, **y = -2x + 5**,
create a table of values that is representative
of that equation.

x	y

Given the following tables,
are they representative of a linear relationship?

If so, what is the equation?

x	y
-2	-15
-1	-10
0	-5
1	0
2	5
3	10

x	y
-5	-15
0	-10
5	-5
10	0
15	5
20	10

x	y
-2	-15
0	-10
3	-5
10	0
15	5
50	10

The data at the right represents the value of a car as it depreciates over a period of 5 years.

Years	0	1	2	3	4	5
Value	15000	12400	9800	7200	4600	2000

Independent Variable =

Dependent Variable =

Calculate and interpret the slope.

For each additional _____ , the car's value decreased _____.

State and interpret the y-intercept.

When the car is new, at ***time*** = _____, the car is worth _____.

Write an equation that models this relationship:

$y = mx + b$ or $y - y_1 = m(x - x_1)$

Use your model to determine the value of the car at 3.5 years._____

Use your model to determine when the car will be worth $700._____

The table below shows the depth in meters of a scuba diver after a certain amount of time under water.

Position of Scuba Diver	
Time (s)	Depth (m)
x	y
0	−24
3	−18
6	−12
9	−6
12	0

Independent Variable =

Dependent Variable =

Find the average rate of change for this relationship. Interpret this value.

average rate of change = _____

For each additional _____ that elapses, the diver has risen _____ meters under the surface of the water.

State and interpret the *y*-intercept. y-intercept = _____

At time = _____, the scuba diver is _____ meters under the surface of the water.

Write an equation that models this relationship:

$y = mx + b$ or $y - y_1 = m(x - x_1)$

Use your model to determine the diver's depth at 5 seconds. _____

Use your model to predict how many seconds it takes the diver reach -9 meters below the surface. _____