Input Output Dependent (Independent)

Independent and Dependent Variables

Explore

Name _____

Date _____ Period _____

Complete each statement. (Number 1 has been completed as an example of a dependent relationship.)

1. The height (output) of a birthday candle depends on (is a function of) *the number of seconds it has been burning.* (input) H(S) H: height S: seconds
2. My grades depends on how much I study or practice.
3. The money I earn depends on how much I work.
4. My mood is a function of (depends on) food, how much I slept

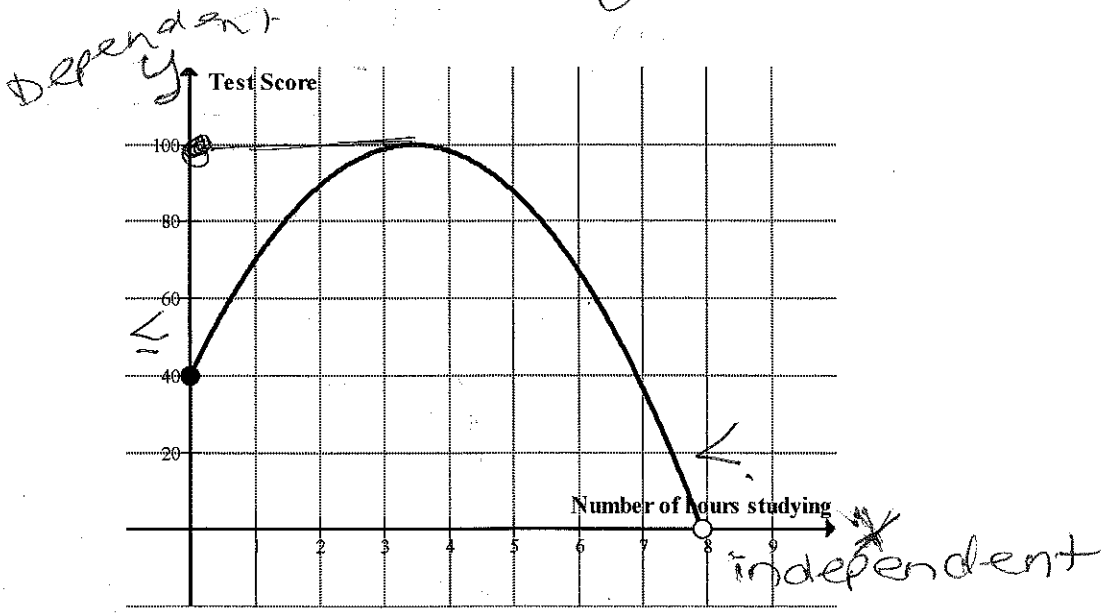
Graphs

5. Complete the sentence describing the functional relationship shown on the graph.

Test score depends on # of hours studying

*For graphs: the **independent** variable is always on the x-axis

and the **dependent** variable is always on the y-axis



What is the domain? $0 \leq x < 8$

What is the range? $0 < y \leq 100$

IV - independent variable
DV - dependent variable

Tables

6. The table below represents the relationship between the cost of hiring a taxi and the number of miles driven by the taxi cab driver. What is the independent quantity?

IV DV

Number of Miles	Cost of Taxi Fare
5	4
7	5.50
10	7.75
13	10
16	12.25
20	15.25

Number of miles

*For tables: the **independent** variable is always on the Left
And the **dependent** variable is always on the right

Word Problems

7. The temperature of the atmosphere decreases about 5 degrees Fahrenheit for every 1000 feet increase in altitude. This relationship can be represented as $t = -0.005h + 77$ where t is the temperature at an altitude of h feet. What is the dependent quantity in this relationship?

temperature -> DV
IV = altitude

Definitions:

Independent: doesn't rely on anything

Independent Variable:
- Input of a function
- cause
- x-value
- variable that you have Most control of

Dependent: does rely on something else

Dependent Variable:
- Output of a function
- Effect
- y-value
- variable that you have the Least control of

DV depends on IV

DV is function of IV

f(x)