

Nov. 5, 2015

Mini-Lesson #3
Independent and Dependent
Variables

Dec 5-9:43 PM

Independent and Dependent Variables

Which of the following is the dependent variable and which is the independent variable?

- a) A study between hours studied and Math test marks.

(Grade on test is dependent on hours spent studying).

Hours studied would be placed on the x-axis, and Math tests marks on the y-axis.

- b) A study between hours worked and money earned.

(Money earned is dependent on hours worked).

Hours worked would be placed on the x-axis, and money earned along the y-axis.

money (dep)
earned
depends on
hours w.
(ind.)

- c) The relationship between height and shoe size.

(Shoe size in this case would be dependent on height).

Height would be placed on the x-axis, and shoe size on the y-axis.

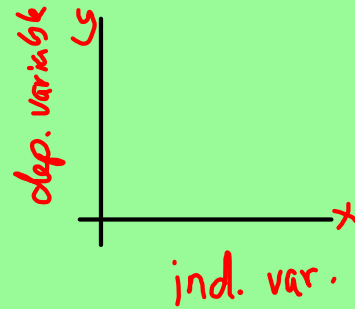
Dec 5-9:03 PM

Independent and Dependent Variables ←

The value of one variable "P" depends on the value of the other variable "n". We say that P is the dependent variable and we plot it on the vertical axis (the y-axis). The independent variable n is plotted on the horizontal axis (x-axis). When two variables are related, we have a relation.

Examples:

- Study time vs. Math Test score
(ind) (dep)
- Hours worked vs. Money earned
(ind) (dep)
- Height vs. Shoe size
(ind) (dep)



Dec 5-9:03 PM

On a graph of your data, make sure to include each of the following:

- A title
- Labels on each axis
- Values on each axis (A scale)

Please come get a piece of graph paper from me if you don't have your own.

Nov 12-10:27 AM

Read over and complete together:

Example 1 Graphing a Linear Relation from a Table of Values

The table of values shows the cost of renting DVDs at an online store.

Number of DVDs Rented, d	Cost, C (\$)
1	3.50
2	7.00
3	10.50
4	14.00
5	17.50

- a) Graph the data. Does it make sense to join the points on the graph? Explain.
- b) Is the relation linear? Justify your answer.
- c) Use the table to describe the pattern in the rental costs. How is this pattern shown in the graph?

a)

Since the cost depends on the number of DVDs rented, plot d horizontally and C vertically.

Dec 13-10:22 PM

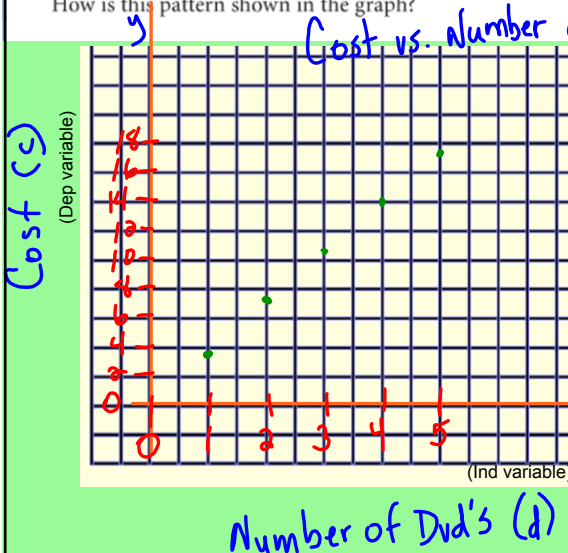
Read over and complete together (solutions):

Example 1 Graphing a Linear Relation from a Table of Values

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Number of DVDs Rented, d	Cost, C (\$)
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- b) Is the relation linear? Justify your answer.
- c) Use the table to describe the pattern in the rental costs. How is this pattern shown in the graph?



Discrete data because you cannot rent part of a dvd. Do NOT join the points.
 Linear because it goes in a straight line and in the table of values, it goes up by \$3.50 every time.

Nov 12-10:24 AM

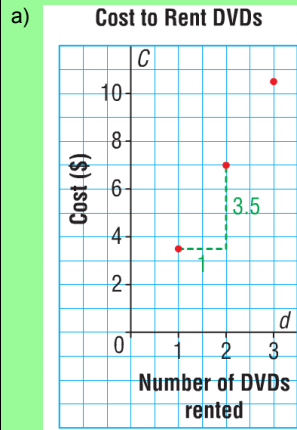
Read over and complete together:

Example 1 Graphing a Linear Relation from a Table of Values

The table of values shows the cost of renting DVDs at an online store.

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- a) Graph the data. Does it make sense to join the points on the graph? Explain.
- b) Is the relation linear? Justify your answer.
- c) Use the table to describe the pattern in the rental costs. How is this pattern shown in the graph?



Since the cost depends on the number of DVDs rented, plot d horizontally and C vertically.

The number of DVDs rented is a whole number. We cannot rent 1.5 DVDs or any other fractional number of DVDs. So, it does not make sense to join the points.

- b) The points on the graph lie on a straight line, so the relation is linear.
- c) As the number of DVDs rented increases by 1, the rental cost increases by \$3.50. Each point on the graph is 1 unit right and 3.5 units up from the previous point. The pattern of increases in the table produces a graph that is a straight line.

Dec 13-10:22 PM

End of mini-lesson
Please complete the textbook questions and/or worksheet for this section on specified on your task.

Nov 6-11:31 AM