

Math 1201

5.4 Interpreting and Sketching Graphs

Discrete vs. Continuous Data

Whether we connect the points or not depends on whether the data is discrete or continuous.

Discrete Data: no values of the independent variable exist in between those given in the table or on the graph.

Consider the price of apples from a local convenience store:

# of apples	1	2	3	4	5
Cost (\$)	0.75	1.50	2.25	3.00	3.75

Since we cannot buy 0.5 apples or 2.3 apples, or in other words, we cannot use values in between those given in the table, the data is discrete. On a graph, these data points would **not** be connected.

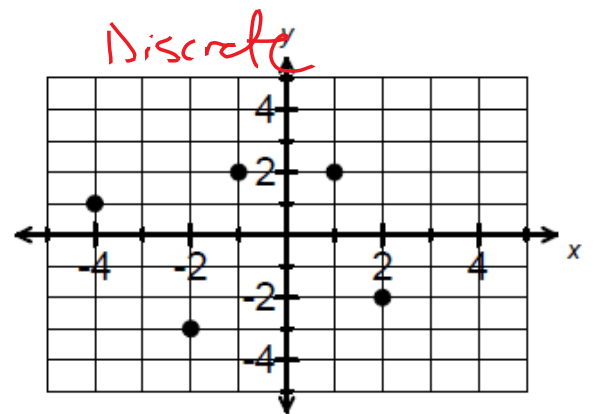
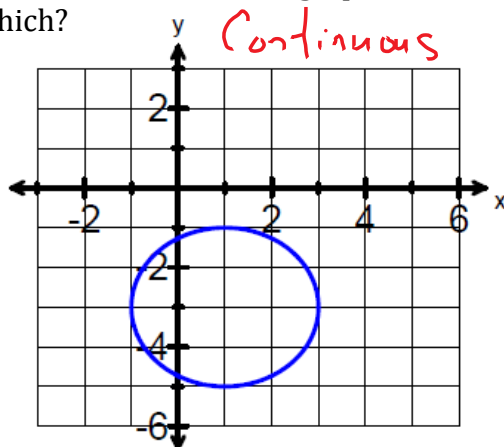
Continuous Data: values of the independent variable exist in between those given in the table or on the graph.

Now consider the the walk to that convenience store:

Time (s)	1	2	3	4	5
Distance walked (m)	0.5	1	1.5	2	2.5

Since we have to walk 0.9 meters before we can walk 1 meter, we **can** use values in between those given in the table. This data is continuous. On a graph, these data points **are** connected.

Examples of discrete and continuous graphs:
Which one is which?



Graphing a Set of Data

Steps

- Determine the independent and dependent variables.
- Label the independent variable on the horizontal axis and the dependent variable on the vertical axis.
- Choose an appropriate scale for each axis.
- Plot the data points.
- Determine whether the data is discrete or continuous.
 - i. If discrete, do NOT connect the points.
 - ii. If continuous, connect the points.
- Give your graph a title, and make sure that each axis is clearly labeled with a name and a unit.

Example 1:

The following data represents the sales of the new Hey Rosetta! song on iTunes in the Corner Brook area during a seven day period after its release.

Day	1	2	3	4	5	6	7
# Sold	5	7	9	11	13	15	17

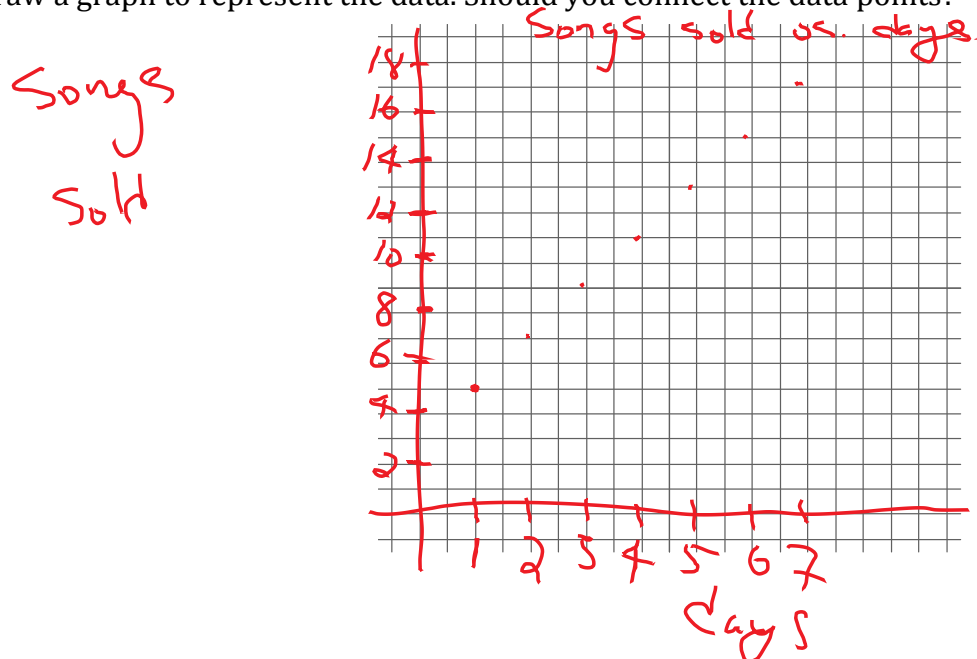
(A) Explain why the relation is a function.

No repetitions of the independent variable.

(B) Is the data continuous or discrete data? Explain why.

discrete data (can't buy 1/2 song!!)

(C) Draw a graph to represent the data. Should you connect the data points?



Example 2:

A child is building a tower by stacking wooden blocks. The table shows how the height of the stack changes as more blocks are added.

# of blocks	1	2	3	4	5
Height of Tower (cm)	1.5	3.0	4.5	6	7.5

(A) Explain why the relation is a function.

(B) Is the data continuous or discrete data? Explain why.

(C) Draw a graph to represent the data. Should you connect the data points?

