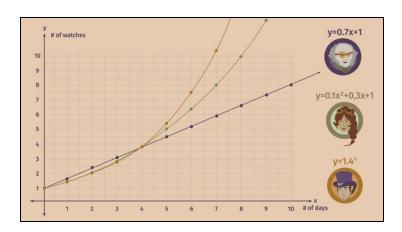
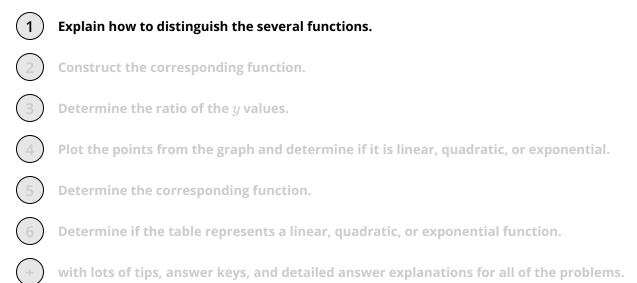


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# Understanding and applying statistical models (linear, quadratic, and exponential)







The complete package, **including all problems**, **hints**, **answers**, **and detailed answer explanations** is available for all sofatutor.com subscribers.







## Explain how to distinguish the several functions.

For exponential functions, the change in the first difference is constant.

Choose the correct statements.

For a linear function, the change in y is constant.

A table represents a linear function if the change in any two consecutivey values divided by the change in their corresponding x values is constant.

A table represents a quadratic function if the the change in x is constant and the change in the first difference is also constant.

For quadratic functions, the change in y is constant.

The table represents an exponential function if the change in x is always constant and the ratio of the y values is constant.



## Hints for solving these problems



# Explain how to distinguish the several functions.

#### Hint #1

x	y
0	0
1	3
2	8
3	15
4	24

Here you see a table for a quadratic function.

#### Hint #2

The second difference of a table representing a quadratic function is constant.



# Answers and detailed answer explanations for these problems



### Explain how to distinguish the several functions.

Answer key: B, C, E

Let's go through each statement one by one:

- For a linear function, the change in y is constant. This statement is false. For a linear function, the change in y over the change in x is constant. This subtle difference is important to remember.
- A table represents a linear function if the change in any two consecutive y values divided by the change in their corresponding x values is constant. This statement is true.
- A table represents a quadratic function if the the change in x is constant and the change in the first difference is also constant. This statement is true.
- For quadratic functions, the change in y is constant. This statement is false. For quadratic functions, the change in the change in y, or second difference, is constant.
- The table represents an exponential function if the change in x is always constant and the ratio of the y values is constant. This statement is true.
- For exponential functions, the change in the first difference is constant. This statement is false. For exponential functions, the ratio of the y values is constant.

