

#### UTAustinX: UT.7.10x Foundations of Data Analysis - Part 1



Important Pre-Course Survey

- Contact Us
- How To Navigate the Course
- DiscussionBoard
- Office Hours
- Week 1: Introduction to Data
- Week 2: Univariate Descriptive Statistics
- Week 3: Bivariate Distributions
- Week 4:
   Bivariate
   Distributions
   (Categorical
   Data)
- ▼ Week 5: Linear Functions

### Readings

Reading Check due Mar 15, 2016 at 18:00 UTC Week 5: Linear Functions > Lecture Videos > Functions and Models

■ Bookmark

# **Functions and Models**

A function is actually very simple: you take some kind of Input and you get some kind of Output.

So the Output is, in fact, a function of the Input.

Think about a soda machine, you put in your money, and you hit a button,

First let's talk about the idea of a function.

and you get a single can of soda out.

In this way, the soda machine is acting like a function: button press, soda.

But here's an important



Download transcript

.srt

# Comprehension Check

1. A national park contains foxes that prey on rabbits. The table below gives the two populations, F and R, over an 11-month period, where t=0 means January, t=1 means February, and so on.

<b>t</b> Mont h	0	1	2	3	4	5	6	7	8	9	10
<b>R</b>	1,00	75	56	50	56	75	1,00	1,25	1,43	1,50	1,43
Rabbi	0	0	7	0	7	0	0	0	3	0	3

#### **Lecture Videos**

Comprehension Check due Mar 15, 2016 at 18:00 UTC

#### **R Tutorial Videos**

#### Pre-Lab

Pre-Lab due Mar 15, 2016 at 18:00 UTC

#### Lab

Lab due Mar 15, 2016 at 18:00 UTC

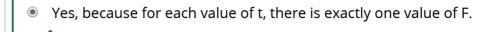
#### **Problem Set**

Problem Set due Mar 15, 2016 at 18:00 UT

ts											
<b>F</b> Foxes	150	14 3	12 5	10 0	75	57	50	57	75	100	125

(2/2 points)

1a. Is F a function of t?



- Yes, because the fox population changes over time.
- No, because the fox population is 75 in both the month of May and the month of September.
- No, because we cannot predict the fox population from time.

1b. Is R a function of F?

- O Yes, because the rabbit and fox populations vary with each other.
- Yes, because the table matches one value of R with each value of F.
- O No, because the value R=567 appears twice.
- No, because when F=57, R=750 and R=1250. 

  ✓

## 2. A mathematical model is

(1/1 point)

- a data table or a graph of data.
- a function used to describe how data is behaving in an actual situation.

 a line that connects the dots when real data is plotted on a scatterplot.

# 3. The table below shows the number of female senators at the beginning of seven sessions of Congress.

<b>C</b> Congress	96	98	100	102	104	106	108
<b>S</b> Female Senators	1	2	2	2	8	9	14

(2/2 points)

3a. Is the number of female senators, S, a function of the session of Congress, C?

- Yes, because for each session of Congress, there is exactly one number of female senators.
- Yes, because the number of senators is independent from year to year.
- No, because there were the same number of female senators in sessions 98, 100 and 102.
- No, but Congress is a function of the number of female senators.

3b. Let f(C) represent the number of female senators serving in the Cth Congress. What does the statement f(108)=14 mean?

- There will be 108 female senators when 14 years have passed.
- In the 108th Congress, there were 14 female senators.
- The average rate of change in female membership is 108 over 14 years.

© All Rights Reserved



© edX Inc. All rights reserved except where noted. EdX, Open edX and the edX and Open EdX logos are registered trademarks or trademarks of edX Inc.

















