

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



Week 6: Exponential and Logistic Function Models > Lecture Videos > Exponential Growth and Decay

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Important Pre-Course Survey

## **Exponential Growth and Decay**

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- Week 1: Introduction to Data
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   Bivariate
   Distributions
   (Categorical
   Data)
- Week 5: Linear Functions
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Modeling is great.

It first allows us to first makes sense of a relationship between two

numerical variables in a more hands on way,

and then, second, allows us to share what we've found in a



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# Comprehension Check

1. What is the growth factor in each of the following scenarios? (Assume time is measured in the units given; round answers to 2 decimal places.)

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N	4	o	d	el	s	

### Readings

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

#### **Lecture Videos**

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

#### **R Tutorial Videos**

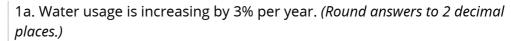
#### Pre-Lab

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

Lab due Mar 15, 2016 at 18:00 UTC

#### **Problem Set**

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





1b. A city grows by 28% per decade. (Round answers to 2 decimal places.)



1c. A diamond mine is depleted by 1% per day. (Round answers to 2 decimal places.)



1d. A forest shrinks 80% per century. (Round answers to 2 decimal places.)



2. The amount (in milligrams) of a drug in the body **t** hours after taking a pill is given by:

$$A(t) = 25(0.85)^t$$

2a. What is the initial dose given (in milligrams)?
<b>2</b> 5
25
2b. What percent of the drug leaves the body each hour? (Report without the % sign.)
15
15
2c. What is the amount of the drug left after 10 hours? (Round to 2 decimal places; report in milligrams.)
4.92
4.92
3. If the population grows by 10 people per year,
what is the formula for the population, P, at time t?
(1/1 point)
$ ho$ $P\left( t ight) =100t^{10}$
$P(t) = 100(1.10)^t$

P(t) = 100 + 1.10t

4. If the population grows by 10% each year, what is the formula for the population, P, at time t?

(1/1 point)

- P(t) = 100 + 10t
- $P(t) = 100t^{10}$
- $P(t) = 100(1.10)^t$
- P(t) = 100 + 1.10t
- 5. Which scenario will result in a larger population in 10 years?
  - a. 10% growth per year
  - b. an increase of 10 people per year

(1/1 point)

- 10% growth
- 10 people per year
- 10% growth will outpace the 10 people per year, but then 10 people per year will grow faster.

They will be the same.

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