# Fill in the Table and Graph. Answer in fraction or integer form.

a)

| x | -3 | -2 | -1 | 0 | 1 | 2 | 3 |
| --- | --- | --- | --- | --- | --- | --- | --- |
| f(x) |  |  |  |  |  |  |  |

b)

| x | -3 | -2 | -1 | 0 | 1 | 2 | 3 |
| --- | --- | --- | --- | --- | --- | --- | --- |
| f(x) |  |  |  |  |  |  |  |

# Calculate the Accumulated/Future Value

a) An initial investment of $5000 is put into an account with an interest rate of 5.5% compounded semiannually. Write the equation for the function that models the accumulated value over time. How much will be in the account after 10 years?

b) An initial investment of $5000 is put into an account with an interest rate of 5.5% compounded continuously. Write the equation for the function that models the accumulated value over time. How much will be in the account after 10 years?

1. Rewrite the Logarithmic Equation in Exponential Form

a) b)

1. Rewrite the Exponential Equation in Logarithmic Form

a) b)

1. Expand the Logarithmic Expression and Simplify when Possible

1. Condense the Logarithmic Expression

1. Solve the Exponential Equation; Round to the nearest hundredth

a) b) c)

1. Find the Domain. Solve the Logarithmic Equation; Do not Include Values Excluded from the Domain

a) b) c)

1. Evaluate a Logarithmic Model. Round to the nearest hundredth.

The percentage of students in a class who can recall important features of a classroom lecture over time is modeled by the function: where is the percentage of students and is the number of days after the lecture. Identify your variables. Answer all questions in separate complete sentences.

What percentage of the students will recall important features day after a lecture?

After how many days will half of the students recall important information? -

1. Build and Evaluate an Exponential Growth Model

The population of Columbia in 2010 was million; the projected population in 2050 is expected to be million. Assume the projection will hold true and that the population will grow based on an exponential model. Identify your variables. Answer all questions in separate complete sentences.

Find Ao first.

Find K to the nearest ten thousandth.

Using the first two pieces of information, find the exponential growth model that describes the population years after .

What is the projected population in (round to the nearest million)?

When is the population expected to double (round to the nearest year)?

1. Evaluate an Exponential Decay Model

The age of an artifact or a fossil can be determined using the formula:

An artifact originally has 80 grams of Carbon-14. Identify your variables Answer all questions in separate complete sentences.

When will it have half its mass in grams(round to the nearest year)?

When will the artifact have 20 grams of Carbon-14 (round to the nearest year)?

When will it have 10% of its original Carbon-14?

1. Evaluate a Logistical Growth Model

A virus spreading through a small community is modeled by the logistical function

where is the number of people with the virus weeks after it started spreading. Identify your variables. Answer all questions in separate complete sentences.

How many people initially had the virus (round to the nearest person)?

How many people will have the virus in 2 weeks?

When will 200 people have the virus (round to the nearest tenth)?

How many people will eventually get the virus before it stops spreading?