

Summary Chapter 10: Exponential and Logarithmic Functions
Intermediate Algebra from OpenStax, a free and open online textbook

Section 1:

Omitted

Section 2:

Terminology

- Exponential Function
- Natural Exponential Function

Be Able To

- Evaluate Exponential Function
- Graph of the Exponential Function
- Find domain of the Exponential Function
- Find x-intercept and y-intercept of the Exponential Function
- Graph of the Natural Exponential Function
- Find domain of the Natural Exponential Function
- Find x-intercept and y-intercept of the Natural Exponential Function
- Applying the concepts

Be able to use the formula

- Formulas for Compound Interest:

After t years, the balance, A , in an account with principal P and annual interest rate r is given by

1. For n compounding periods per year: $A = P \left(1 + \frac{r}{n} \right)^{nt}$

2. For continuous compounding: $A = Pe^{rt}$

Section 3:

Terminology

- Logarithmic Function
- Common Logarithmic Function
- Natural Logarithmic Function

Be Able To

- Evaluate Common Logarithmic Functions using the calculator
- Construct a graph the Common Logarithmic Function
- Evaluate Natural Logarithmic Functions using the calculator
- Construct a graph the Natural Logarithmic Function
- Applying the concepts

Section 4:

Omitted

Section 5:

Omitted

Be able to use the formula

- The loudness level, D : measured in decibels, of a sound intensity, I , measured in watts per square inch is $D = 10 \log \left(\frac{I}{10^{-12}} \right)$
- The magnitude R of an earthquake: $R = \log I$, where I is the intensity of the shock wave.
- The pH of a substance: $pH = -\log[H^+]$ where $[H^+]$ is the hydrogen ion concentration in moles per liter.

Sample Applications of Chapter 10 Content

- Use a given formula to calculate the current value of a car

Example: $v(t) = P(1 - r)^t$ where $v(t)$ is the current value of the car, P is the purchased price of the car, r is the depreciation rate and t is time

- Use a given formula to calculate bacteria growth