

ALGEBRA FOR CALCULUS Topics List for Chapter 5 Exam

Section 5.1

Be able to:

- Explain in your own words the meaning of the inverse of a function; give an example of two functions that are inverses of each other
- Explain in your own word the meaning of one-to-one and give an example of a function that is one-to-one and one that is not one-to-one
- Determine if a given function is one-to-one (like #25 – 43 on p. 397)
- Sketch the graph of the inverse of a function given the graph of the function (like #67 – 72)
- Verify that two functions are inverses of each other using composition of functions (#73-78)
- Find the inverse of a function given by a formula (like #45-58, 79 – 85)

Section 5.2

Be able to:

- Sketch by hand the graph of an exponential function using transformations of graphs (like #27 – 50 on p. 409)
- Know and use the compound interest formulas:
 1. to write a mathematical model given principle, interest rate, and number of compoundings; (like # 51 –54)
 2. to calculate the account balance after a given number of years. (#55 – 62)

Section 5.3

Be able to:

- Find the logarithm (with base given) of a number (like #9 – 34 p. 426);
- Convert an exponential equation to a logarithmic one and vice versa (like #35 – 54);
- Find the domain of a given log function (#83 – 94)
- Sketch by hand a log function using transformations of graphs (# 83 - 94)

Section 5.4

Be able to:

- Express a single logarithmic expression in terms of sums and differences of logs (like #23 – 34 on p. 437)
- Express a sum or difference of logs as a single logarithm (# 35 – 52)

Section 5.5

Be able to:

- Solve exponential equations which have the property that both sides can be written with the same base (like # 1 – 9 p. 448)
- Solve exponential equations by taking the log or ln of both sides (# 11 – 30)
- Solve logarithmic equations by writing in exponential form (# 31 – 40)
- Solve logarithmic equations by first writing one side as a single log then writing in exponential formula (# 41, 42, 45, 46, 51, 53, 54)

- Solve logarithmic equations having a logarithm on both sides of the equation (# 43, 44, 48, 49, 50, 52, 55, 56)
- Know which technique to use when

Section 5.6

Be able to:

- write an exponential model for a given real world scenario
- find the growth or decay rate by solving the exponential function algebraically
- find doubling time and half life

Good problems to study: all the homework problems on pp. 459 - 462