AP Calculus Unit 1 Study Guide

1. Know how to evaluate limits of functions algebraically, graphically, & numerically.

2. Know how to evaluate functions & limits of functions using piecewise functions.

3. Know the differences between limits involving infinity & infinite limits.

4. Know and understand the concept behind continuity whereas using the 3 requirements of being continuous to prove or disprove continuity. Also be able to evaluate continuity graphically & algebraically.

5. Know how to find horizontal asymptotes of functions algebraic & graphically. Be able to use the algebraic technique to get horizontal asymptotes.

   [i.e. $\lim_{x \to \infty} f(x)$]

6. Know the theory knowledge behind limits & continuity. Be able to use it to answer multiple choice questions.

Know how to do the following in the calculator:

7. graph a function (or multiple functions in the calculator).

8. produce a table of values from a function

HINT FOR TEST

Be able to evaluate limits of complicated functions by using a calculator whereas inputting the function & numerically analyzing the limit by producing a table.

(i.e.)

$\lim_{x \to 3} \frac{x^2 - x - 6}{x - 3}$ → evaluate limit algebraically.

$\lim_{x \to 0} \frac{\sqrt{e^x} - \ln x + 3}{x}$ → too complicated to evaluate algebraic, so calculator must be used to evaluate limit numerically.

$\lim_{x \to \infty} \frac{x^2 - 3x + 5}{5x^5 - x + 2}$ → evaluate limit algebraically

$\lim_{x \to \infty} \frac{2x + \ln x - \sqrt{2x}}{x^2 - 5}$ → too complicated to evaluate algebraic, so calculator must be used to evaluate limit numerically.

Go to "I Study?" on the website for more information on different ways to study for the test.