What you should know before you go to the final exam

1. General advices
   - Always begin by reading the examples and then test you understanding by solving exercises.
   - Solve exercises as many as you can.
   - Do not use calculator.
   - If you have problem dealing with elementary functions you can review chapter zero or refer to any pre-calculus textbook. If you like online help, use google to get a quick answer to your problem.

2. Chapter one
   You start reviewing chapter one. This chapter deals with limits and continuity.
   - Concentrate on computation of limits, limits involving infinity and asymptotes.
   - You should be able to compute the limit of all elementary functions as well as piecewise-defined functions (see example 3.9 page 84).
   - Do not use tables to compute limits

3. Chapter Two
   Here you learn who to differentiate functions from the definition as well as from the rules (power rule, product rule, quotient rule, chain rule).
   - The derivative of a function $f$ at $x = a$ is the slope of the tangent line at $(a, f(a))$.
   - You should know how to differentiate elementary functions as well as piecewise-defined functions.
   - You should know whether a function is differentiable or not.
   - You have to memorize the derivative of elementary functions, trig, exp, log and tables pages 171, 189, 194, 196.
   - If a function is given implicitly, you can use implicit differentiation to get the derivative.

4. Chapter three
   This is the core chapter in calculus I.
   - You should know how to deal with the indeterminate forms.
   - You should sketch the graph of many functions. This will help you to understand all the applications of differentiation.

5. Chapter four
   This chapter show you how to integrate a function. Integration is simply the reverse process of differentiation.
• You should know how to integrate all elementary functions (see table page 303). You can reverse the table of differentiation to get the table of integration.

• Apply the fundamental theorem of calculus part I and II

• You should know how to compute definite integral for elementary functions as well as for piecewise-defined functions.

• You should know how to apply integration by substitutions.

6. **Chapter five**
   In this chapter you will learn one application of integration, area between curves.

   • You should be able to find the area between curves.

   • Sometimes you need to find the intersection between two curves.

   **Good Luck!**