MAC2312
Calculus II
Mid-Term Examination Topic Outline

1. Find the area between two curves *wrt x or y.*
2. Find the volume of a solid generated by revolving the region about a given axis of rotation [this could be by method of disks, washers, or cylindrical shells] *wrt x or y.*
3. Find the arc length of a plane curve *wrt x or y.*
4. Find the surface area of revolution *wrt x or y.*
5. Calculate the work required to move an object; constant or variable force; compressing/stretching springs.
6. Calculate the work required moving a fluid.
7. Determine the fluid force on horizontal or vertical surfaces.
8. Determine the Mass of a given surface with either constant or variable density function.
9. Determine the moment about a specified axis.
10. Determine the Center of Mass (or centroid) of a given surface.

11. Evaluate given logarithmic/exponential expressions
12. Find the derivative of a given logarithmic/exponential function
13. Integrate a given logarithmic/exponential function
14. Express a given hyperbolic function in terms of exponentials
15. Find the derivative of a given hyperbolic function (this may include inverse hyperbolics)
16. Integrate a given hyperbolic function (this may include inverse hyperbolics)

17. Integrate a given problem [this may be done by direct, *u*-substitution, by-parts, trigonometric integration, trigonometric substitution, partial fractions, or improper integrals methods].
18. Integrate using numerical techniques [this includes trapezoidal or Simpson's rule] and calculate requested error.
19. Find *n* to keep absolute error to at most a given requested value.
20. Solve related applications to the above listed topics.

Chapter review:

Ch. 6 p. 421   1 – 14, 18 – 29, 32 – 34, 37 - 44
Ch. 7 p. 459   1 – 12, 25 – 27, 31 - 42
Ch. 8 p. 533   1 – 44*, 49, 52 – 131*

And study your Take Home Tests

*every other odd (or as many as you feel you need to practice to be proficient)