

## Review information for Chapters 9 and 10

- Test covers both chapters. Sections listed below.
- No calculators.
- 10 questions (5 points each). Some multiple choice.
- Homework is due before the test, as usual.
- All Test Policies will be followed.

Note: Past topics such as trig & inverse trig angles & values, half-angle & double angle formulas,  $u$ -substitution, integration by parts, etc. can show up as they occur in these types of problems.

- Topics
  - **9.1 Intro to Differential Equations**  
Including verifying solutions with LHS = RHS  
and implicit vs. explicit solutions and general vs. particular solutions
  - **9.2 Slope Fields and Euler's Method**
  - **9.3 Separation of Variables**  
Including orthogonal trajectories (including implicit differentiation)
  - **3.8 Exponential Growth & 9.4 Logistic Growth**  
Note: Recognize and be able to use Logistic Growth differential equation and its solution. You do not have to memorize it.
  - **9.5 First-Order Linear D.E.s** (Integrating Factor Method)
  - **10.1 Introduction to Parametric Equations**  
Basic graphs, eliminate parameter, convert to parametric form, etc.
  - **10.2 Parametric Derivatives and Integrals**  
Find and Interpret  $dy/dt$ ,  $dx/dt$ ,  $dy/dx$ ,  $d^2y/dx^2$  and Arc Length
  - **10.3 Introduction to Polar Coordinates & Derivatives**  
Converting coordinate systems (points and equations), basic graphs,  $dr/d\theta$ ,  $dx/d\theta$ ,  $dy/d\theta$ ,  $dy/dx$ ,  $d^2y/dx^2$
  - **10.4 Finding Area of Polar Graphs**  
Including single curve and multiple curve problems