

## MATH 211.01 - CALCULUS II

Your third in-class exam will take place on Tuesday, December 8, 2009, and will cover material from sections 9.1 - 9.5.

DON'T FORGET YOUR CALCULATOR!!!

For this exam you need to:

- Chapter 9
  - Sketch a plane curve given the parametric equations.
  - Given the parametric equations, find the corresponding  $x$ - $y$  equation.
  - Given an  $x$ - $y$  equation, find the corresponding parametric equations.
  - Given the parametric equations, find the slope of the tangent line for a given value of the parameter.
  - Given the parametric equations, find the slope of the tangent line at a given point on the curve.
  - Given the parametric equations representing the position of an object, find the velocity and speed.
  - Given the parametric equations, find the arc length of a curve.
  - Given the parametric equations, find the surface area formed when the curve is revolved around either a horizontal or a vertical axis.
  - Given the rectangular coordinates of a point be able to find the corresponding polar coordinates.
  - Given the polar coordinates of a point be able to find the corresponding rectangular coordinates.
  - Sketch a polar equation.
  - Find a polar equation corresponding to a given rectangular equation.
  - Find the slope of the tangent line to a polar curve at a given point.
  - For a polar curve, determine the points for which the value of  $|r|$  is a maximum, and show that the slope of the tangent line is perpendicular to the radius connecting the point to the origin.
  - Find the area of a region enclosed by a polar curve.
  - Find the points at which two polar curves intersect.
  - Find the arc length of a polar curve.

Make sure that you have looked at all the homework questions that were assigned. (Not just the ones that you handed in!) In addition, the following are good review problems:  
pg 781: 1 - 17 odd, 23 - 49 odd

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