

## Chapter 10 Study Sheet

Below are topics to expect on the Chapter 10 AP Calculus BC test. At times, multiple topics will be combined into a single question.

- Curve sketching
  - Given a parametric equations
  - Given a polar equation
- Conversions
  - Parametric equation to rectangular and rectangular to parametric
  - Polar equation to rectangular and rectangular to polar
  - Polar coordinate to rectangular coordinate
- Derivatives
  - 1<sup>st</sup> derivative of a parametric equation ( $dy/dx$ )
  - 2<sup>nd</sup> derivative of a parametric equation ( $d^2y/dx^2$ )
  - $dy/dx$  for a polar equation
  - Find vertical and horizontal tangents for polar equations or parametric equations
  - Find the equation of tangent to parametric or polar equations at a given point
- Area
  - Parametric
  - Polar
    - One petal
    - A portion of a curve (inside of a loop, whole curve, etc.)
    - Intersection of two equations
- Arc length
  - Parametric
  - Polar
- Min/Max of a polar equation
- Meaning of  $dr/d\theta$ .