

## Calculus 1 topics needed for Calculus 2

### 1. Basic types of functions and solving corresponding equations

- a. Linear
- b. Quadratic
- c. Polynomial – odd and even
- d. Rational & Radical
- e. Exponential & Logarithmic
- f. Trig (if needed, see additional handout for Trig review)
  - i. Sine function
  - ii. Cosine function
  - iii. Tangent function
  - iv. Secant function

### 2. Limits & Continuity

- a. L-Hospital's Rule

### 3. Derivatives

- a. Rules – see reference page 5 of calculus text #1 - 21
- b. Rates of Change – average and instantaneous
- c. Applications (max/min problems)

### Section 2.9 : What does $f'$ say about $f$

#### Section 4.9: Antiderivatives

- a. Relation between  $f'$ ,  $f''$  and  $f$ , or  $f'$ ,  $f$  and  $F$ .
- b. Most general antiderivative family
- c. Rectilinear Motion-  $y = at^2 + v_0t + h_0$ , where  $a_0 = acceleration$ ,  $v_0 = initial\ velocity$ , and  $h_0 = initial\ height$ . Given acceleration, find velocity and height function.
- d. Basic Integration Rules listed on reference page 6 of Calculus text: know #2 – 8, 11, \*12, \*14 [\*may be new to students]

#### Section 5.1 Areas & Distances

- a. Given graph of  $f'$ , get graph of  $f$ .

#### Section 5.2: Definite Integral

- a. definition and properties

#### Section 5.3: Evaluating Integrals

- a. Definite Integrals - Net Change and Total Change
- b. Indefinite Integrals – Antiderivate Family
- c. Initial-value problems

#### Section 5.4: Fundamental Theorem of Calculus

Basically, differentiation and integration are inverse processes.