Topic #14 (Math 31)

1. Goals (4.2):
    a. Linear Approximation
    b. Differentials
2. Linear Approximation
    a. Idea: Use the tangent line at a point to approximate the function nearby.
    b. To find:
        i. Get the point-slope form of line.
        ii. Solve for f(x)
    c. Example: Find linear approximation of f(x) = x^2 at 1. Check accuracy of approximation at 2 and then as we get closer to 1.
    d. Examples:
        i. Section 4.2 (p. 364): Exercises among 50 – 55
3. Differentials
    a. Name parts of the linear approximation as follows.
    b. Delta x = dx = x change from a.
    c. Delta y = y change of FUNCTION
    d. dy= y change of APPROXIMATION
    e. Examples:
        i. Section 4.2 (p. 364): Exercises among 68 – 71
        ii. Section 4.2 (p. 364): Exercises among 72 - 77