AP Calculus
1.2 Worksheet

All work must be shown in this course for full credit. Unsupported answers may receive NO credit.

1. Find the domain and range of the following parent functions: (write your answers in interval notation)

      a) linear   b) quadratic   c) logarithmic

      d) sine   e) inverse sine   f) inverse cosine

      g) inverse tangent   h) inverse linear $(1/x)$ i) inverse quadratic $(1/x^2)$

2. What is the domain of $f(x) = \dfrac{\sqrt{9 - x^2}}{x}$?

3. A student begins saving money by hiding $50 they received for their birthday in an envelope in their bedroom. After forgetting about the envelope for 3 months, the student starts putting $10 a month into the envelope for the next 3 months. The student then gets a job and decides to increase the amount to $30 per month for the next 6 months. Write a piecewise function that models the amount of money in the envelope as a function of the number of months since their birthday, *m*.

4. Write the equation of the following:

    a) the area A of a circle as a function of its diameter d.

    b) the area A of an equilateral triangle as a function of its side length s.

    c) the area A of a rectangle as a function of its width W, where the length L is twice as long as its width W.

5. Prove whether the following functions are even, odd, or neither.

    a) $y = 3 - x^2$

    b) $g(x) = \dfrac{x^2 - 1}{x^3}$

    c) $f(x) = 2x - 5x^3$

6. Complete the following textbook problems: page 20 #46, 49, 51, 53, 54, and 56.