## Name: \_\_\_\_\_\_ Math 151 - Calculus I – Crawford

Books, notes, and calculators are allowed. You are allowed to work with each other, but you may not get help from me or the tutors. *Show all your work.* Good Luck!

**2.** (2 pts) Find the <u>absolute</u> maximum and minimum <u>values</u> of  $f(x) = (x^2 - 1)^3$  on the interval [-1, 2].

5. (1 pts) The graph of the second derivative f''(x) is given below.



(a). On which intervals is the <u>function</u> f (not the second derivative) concave upward or concave downward?

(b). State the x-coordinate(s) of the inflection point(s) of the *function* f.

**9.** (2 pts) A zoo needs to add a rectangular outdoor pen to an animal house with a corner notch [See figure below]. Fencing will be used to divide the pen into two regions as shown. For the health of the animals, the *total* area of the outdoor pen must be 800 square meters. What dimensions of the pen will minimize the amount of fencing used?

[Note: No fence will be used along the walls of the animal house.]

