

Math 151**Quiz 6**

Justify all answers with neat and organized work. Clearly indicate your answers.
10 points possible.

1. (3 pts.) Sketch the graph of a function on $[-1, 2]$ that has an absolute maximum but no absolute minimum.

2. (3 pts.) Find the differential dy . Then evaluate dy for the given values of x and dx .

$$y = x^3 + 5, \quad x = 2, \quad dx = 0.05$$

3. (4 pts.) A water trough is 10 m long and a cross-section has the shape of an isosceles *triangle* that is 0.6 m wide at the top and has height 0.5 m. If the trough is being filled with water at the rate of $0.2 \text{ m}^3/\text{min}$, how fast is the water level rising when the water is 0.3 m deep?