

MATH 135: Quiz 8

October 28, 2014

Name: _____ Sec: _____

1. Use differentials or linear approximations to approximate the value of $\sqrt{16.1}$.

2. The Kinetic Energy of an object [in Joules] is given by the formula

$$KE(v) = \frac{1}{2}mv^2$$

where v is the velocity of the ball [in m/s] and m is the mass [in kg]. Someone throws a 1 kg medicine ball at the wall and you measure the speed of it as 10 m/s. [The mass is exactly 1 kg, so there is no error in that measurement.] If your measurement of the speed is within .5 m/s, what is the approximate propagated error (ΔKE) in your calculation of the Kinetic Energy of the ball?

3. Let

$$f(x) = 2x^3 - 9x^2 = x^2(2x - 9).$$

- (a) Find all “critical numbers” or “critical points” of f .
- (b) Find the **absolute** maximum and minimum values of f on $[-1, 5]$.
- (c) What does the Mean Value Theorem say about some point c between -1 and 5 ?