

NAME:

MATH1210-002

Quiz 6: §2.8 & 2.9

July 1, 2016

Instructions: Please show all of your work as partial credit will be given where appropriate, *and* there may be no credit given for problems where there is no work shown. All answers should be boxed and completely simplified, unless otherwise stated. No electronics are allowed.

1. **[10 points]** For $f(x) = x^3 - 5x^2 + 4x - 7$, use differentials to approximate $f(3.99)$.

2. **[10 points]** Approximate $\sqrt{15}$ using differentials.

3. **[10 points]** A 20 foot ladder is leaning against a building. If the bottom of the ladder is sliding away from the building along the level pavement at 0.5 feet per second, how fast is the top of the ladder sliding down the wall when the base of the ladder is 10 feet away from the building?
4. **[10 points]** Air is being blown into a bubble gum bubble at 2 cm^3 per second. Assuming the bubble retains its spherical shape as it expands, how fast is its radius increasing when the radius is 4 cm?