M 408C - Differential and Integral Calculus

Week 2 - 2.1-2.4

Quest HW 02 - Due Tuesday at 11:30p.

Gradescope HW 02 - Due Wednesday at 11:30p on Gradescope

§2.1, #6 (Use a calculator!)

§2.2, #51

§2.3, #44, #45, #51 (use a graphing calculator or desmos for part c of #51)

Additional Problems:

Additional Problem #1) When a ball is thrown vertically upwards into the air with a velocity of 32 ft/sec its height, $y(t)$, in feet after t seconds is given by $y(t) = 32t - 16t^2$.

a) Find the average velocity of the ball over the interval $[2, 2+h]$, $h > 0$.

b) Find the instantaneous velocity of the ball at $t = 2$.

Additional Thing #1):

Hopefully you got a surprising answer to §2.2 #51. It might not surprise you that theres more to the story when traveling near the speed of light:

`https://www.youtube.com/watch?v=DO7J2YIz8tY`

Additional Thing #2):

Constructed in 1931, Waggener Hall (named after one of the original 8 UT professors) depicts many of Texas's exports at that time along the top of the building. You can find images (called terra-cotta medallions) of oil, cotton, lumber, corn, pecans, and cattle. It isn't a surprise that these were Texas exports almost 100 years ago. However, you might be surprised to learn that Texas, specifically South and Southwest Texas, was also a producer of a significant portion of The USA's citrus supply. This is commemorated by a terra-cotta medallion of oranges on Waggener Hall.

Find the oranges and take a selfie with you and the oranges in the background. Groups are

ok too, but everyone must submit a picture as part of HW02 on gradescope. Doing this is worth 10 extra points on your Gradescope HW.

One more fun fact about Waggener Hall: during the Cold War Waggener Hall was designated a fallout shelter incase of a nuclear attack by the Soviet Union. There used to be nuclear symbols inside the building indicating it was a fallout shelter. Are they still there?