

M 408C - Differential and Integral Calculus

Week 3 - 2.5-2.7

Quest HW 03 - Due Monday at 11:30p.

Gradescope HW 03 - Due Wednesday at 11:30p on Gradescope

§2.5, #48

§2.6, #10, 23, 25, 26

§2.7, #43, 44, 45

Additional Problems:

#1) Use the $x - a$ definition of a derivative (p. 144, Equation 5) to find $f'(2)$ when $f(x) = \sqrt{x}$.

#2) Use the h definition of a derivative (p. 144, Equation 4) to find $f'(2)$ when $f(x) = \sqrt{x}$.

#3) If $\lim_{x \rightarrow 2} \frac{f(x) - f(2)}{x - 2} = 21$, find $\lim_{x \rightarrow 2} f(x)$.

#4) Find all values of a such that the function $f(x)$ is continuous:

$$f(x) = \begin{cases} 2x + 3 & x \leq a \\ x^2 & x > a. \end{cases}$$

For each value of a sketch the graph of $f(x)$.

Additional Thing:

Studying in groups is important but so is studying by yourself! Studying in your room can work, but sometimes there are **lots** of distractions: roommates, friends, noisy neighbors, the temptation to take a nap in your own bed! It's important to find quiet spaces on campus where you can work without all of those distractions.

For 10 extra points on your HW, find a quiet place on campus (other than your room) to do some homework. Take a selfie and include it in your HW.

Here are some places to check out:

1. The quiet space in the PCL (not the ground floor!)
2. The Life Sciences Library in the Tower (the big room or a study space surrounded by books)
3. The Architecture Library (a favorite of mine)
4. NHB, upper floors
5. Any empty classroom in any building. Clean up after yourself and leave the room exactly as you found it.
6. Texas EXpresso cafe, in the Texas Exes building, near the stadium
7. Gregory Gym
8. The PMA Library
9. The small tables in the EER

Some of these spaces are **very** quiet, some of these will have a fair amount of ambient noise. Find the one where you study best.

If you find other places for quiet study please let me know and I will add to this list for future semesters! Just write them down of your HW after your selfie.