

MAT 17BA Fall 2023
Homework 1

Due before 1:10 PM on Wednesday, October 4

Please write the homework solutions in connected sentences and explain your work. Mark the answers to each question. Scan or take pictures of your homework and upload it to Gradescope before due time.

1. (10 points) At the surface of the ocean, the water pressure is the same as the air pressure above the water, 15 lb/in². Below the surface, the water pressure increases by 4.34 lb/in² for every 10 ft of descent.

(a) Express the water pressure as a function of the depth below the ocean surface.

(b) At what depth is the pressure 100 lb/in²?

Graph the functions below by hand, not by plotting points, but by starting with the graph of one of the standard functions, and then applying the appropriate transformations. Plot the graphs of the functions at all intermediate steps.

2. (10 points) $y = \frac{1}{2}(1 - \cos x)$

3. (10 points) $y = 1 - \frac{1}{2}e^{-x}$.