

MAT 17B, Fall 2020

Homework 1

Due before 4:10 PM on Wednesday, October 7

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) (a) Draw the graph of

$$f(x) = \begin{cases} 3 & \text{for } x < 3 \\ x & \text{for } x \geq 3 \end{cases}$$

- (b) Compute the integral $\int_0^5 f(x)dx$ by interpreting it in terms of areas.

2. (10 points) Compute the integral $\int_2^{10} (2x - 8)dx$ by interpreting it in terms of areas.

3. (10 points) (a) Estimate the integral $\int_{-2}^2 x^2 dx$ using four intervals and midpoints.

- (b) Use Fundamental Theorem of Calculus to compute $\int_{-2}^2 x^2 dx$ exactly.