

MATH 1300
Weekly-Work Prompts

All responses are to be uploaded to Canvas for their corresponding weeks. All responses are due the Sunday of the week they are assigned.

| Due | Prompt |
|------------|---|
| Week 10 | What topic(s) are you the struggling the most with for exam 3? You will find a solution to problem 4 from Written Homework 10 below. Please revise this problem from your submission and upload it along with your response to the above prompt as a single PDF. |

Written Homework 10 Problem 4

The average rate of change of $f(x)$ on $[1, 8]$ is

$$\begin{aligned}\frac{f(8) - f(1)}{8 - 1} &= \frac{2 - 3}{7} \\ &= -\frac{1}{7}.\end{aligned}$$

The conclusion of the MVT says, in words, that there must be an $x = c$ where the slopes of tangent lines to $f(x)$ at $x = c$ is equal to this average rate of change. If the slopes of two lines are equal, they are parallel. So, we are looking for x values where tangent lines appear parallel to the secant line to $f(x)$ from $x = 1$ to $x = 8$. This appears to occur near $x = 3$ and $x = 6.5$.