MAT131 Fall 2022 Paper HW 1

Due the week of August 29 – September 2. For all problem sets, students are allowed to work together. However, the final answer you turn in must be based on your own understanding and must be in your words. Per university policy, all instances of suspected academic dishonesty will be referred to the academic judiciary.

Problem 1. Find the unique real numbers a, b, and c such that the parabola $y = ax^2 + bx + c$ contains the points $(x, y) = (1, 1)$, $(x, y) = (3, 1)$ and $(x, y) = (2, 0)$. Sketch the graph of this parabola. Show your work.

Problem 2. A triangle has two edges of lengths A and B, and the interior angle between these angles is θ. Explain why the area of the triangle equals $AB \sin(\theta)/2$.