MATH 149S

Homework 10

1. Find all values of a for which the vertex of the parabola $y = ax^2 + 8x + a + 6$ lies on the x-axis.

2. Find all values of b for which the equation $x^2 + bx + 8 = 0$ has two integer roots.

3. Find all values of c for which both roots of $x^2 - 18x + c = 0$ are prime numbers.

4. Let a, b, and c be three distinct one-digit numbers. What is the maximum value of the sum of the roots of the equation $(x - a)(x - b) + (x - b)(x - c) = 0$?

Note. In case you would like to copy-paste the problem statements into your homework, here is a link to the overleaf file with this assignment:

$$\texttt{https://www.overleaf.com/read/mnkxhnqfmhkt}.$$