Question

(5 marks) Use Lagrange multipliers to find the maximum and minimum values of the function subject to the given constraint.

$$f(x_1, x_2, ..., x_n) = x_1 + x_2 + ... + x_n; x_1^2 + x_2^2 + ... + x_n^2 = 2020$$

Note: Show all steps using the method of Lagrange multipliers to earn full marks. Describe the procedures in words to earn partial marks, if you can not solve the problem.