Problem statement A flat circular plate has the shape of the region $x^2 + y^2 \leq 1$. The plate (including the boundary $x^2 + y^2 = 1$) is heated so that the temperature T at any point (x, y) is given by $T(x, y) = x^3 - x + 2y^2$. Locate the hottest and coldest points of the plate and determine the temperature at each of those points.