

## Problems: Lagrange Multipliers

1. Find the maximum and minimum values of  $f(x, y) = x^2 + x + 2y^2$  on the unit circle.
2. Find the minimum and maximum values of  $f(x, y) = x^2 - xy + y^2$  on the quarter circle  $x^2 + y^2 = 1, x, y \geq 0$ .

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