

## 1 Disk max/min

Find the maximum and minimum values of  $x^2 + y^2 - 2x - 2y$  on the disk of radius  $\sqrt{8}$  centered at the origin, that is, on the region  $\{x^2 + y^2 \leq 8\}$ . *Explain your reasoning!*

## 2 Nearest Points on Curve

Find the points on the curve  $x^2 + xy + y^2 = 3$  which are closest to and furthest from the origin.