

Pencils and Erasers Only – No Calculators Allowed.

- 1 Find the exact length of the polar-curve arc

$$r = 3 \sin(\theta) \quad \text{with} \quad 0 \leq \theta \leq \pi/4.$$

- 2 Find the exact area of the sector indicated in problem 1. That is, find the area of the Quadrant-I region enclosed by the polar curves $r = 3 \sin(\theta)$, $\theta = 0$, and $\theta = \pi/4$.