1. (1 point) Find the length of the spiral defined by $r = e^{-\theta}$ for $0 \leq \theta < \infty$.

2. (1 point) Find the area contained in one “petal” of $r^2 = \sin(3\theta)$ and multiply by number of petals to obtain the total area.

3. (1 point) Find the angle between $y = x^4$ and $y = x^5$ at their (non-zero) point of intersection.