1. (1 point) Find the area contained in one “petal” of \( r^2 = \cos(5\theta) \) and multiply by the number of petals to obtain the total area.

2. (1 point) Find the length of the spiral defined by \( r = e^{-\theta} \) for \( 0 \leq \theta < \infty \).

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