King Fahd University of Petroleum and Minerals

MATH 201 QUIZ #1 Term 172 *Dr. A. Khalfallah*

Name:	ID:

Q1. Convert the curve $x = 1 + 2\sin t, \quad y = 2\cos t + 2, \quad 0 \le t \le \pi$ into Cartesian equations. Sketch the curve with the direction of the motion.

Q2 Determine the concavity of the curve given by $x(t) = t - \sin t, \quad y(t) = 1 - \cos t \quad on \ (0,2\pi)$.

Q3 Sketch the two curves and find the area of the region that lies inside both curves.

$$r = \sin\theta \quad ; \quad r = 1 - \sin\theta$$

Q4 Find the length of the curve $r = \mathrm{a}\sin^2(\theta/2),\ 0 \le \theta \le \pi \ and \ \ a > 0.$