

King Fahd University of Petroleum and Minerals

MATH 201

QUIZ #2

Term 153

Dr. A. Khalfallah

Name:

Section:

Serial:

ID:

Q1. Sketch the cardioid $r = 1 - \sin \theta$. Find the points on the curve where the tangent line is *horizontal*.

Q2 Find the area of the region that lies *inside* $r = 3 \sin \theta$ and *outside* $r = 2 - \sin \theta$.

Q3 Find the length of the cardioid $r = a(1 + \sin \theta)$, where $a > 0$.