**KING FAHD UNIVERSITY OF PETROLEUM AND MINERALS**
**DEPARTMENT OF MATHEMATICS AND STATISTICS**
**MATH 102 - QUIZ 1**

Name:
Student ID #:

**Question 1**. Identify the path of the particle whose motion is described by the parametric equations

$$2x = \sqrt{t+3} \quad y = 3 - \sqrt{10-t}, \quad 1 \leq t \leq 6.$$

Sketch the portion of the path traced by the particle with the direction of motion.

**Question 2**. Set up, but do not evaluate, an integral that represents the area of the surface obtained by rotating the parametric curve

$$x = t - \sin t, \quad y = 1 - \cos t,$$

from the point $(0, 0)$ to the point $(\pi, 2)$ about the $y$-axis. Simplify your answer.

**Your Solution**.