

ING FAHD UNIVERSITY OF PETROLEUM AND MINERALS  
DEPARTMENT OF MATHEMATICS & STATISTICS

MATH 201-05

Quiz # 1

March 3, 2010

NAME:

ID#:

**SHOW ALL YOUR WORK**

1. **(3points)** Which points on  $x = 3t + t^2, y = t^3 - 12$  have tangents with slope 3?
2. **(3points)** Find  $\frac{dy}{dx}$  and  $\frac{d^2y}{dx^2}$  at the point  $(1, 3)$  on the curve  $x = e^{-t}, y = 3 \cos t$ .
3. **(4points)** Eliminate  $t$  and sketch the resulting curve for  $x = 2 \cos t, y = \sin t, -\frac{\pi}{2} < t < \frac{\pi}{2}$ . Indicate with an arrow the direction in which the curve is traced as  $t$  increases.