KFUPM/ Department of Mathematics & Statistics ID # Serial #
MATH 201/ Quiz 1/ 101 Name

1. For the curve $x = \cos 2t$, $y = \sin t$, $-\pi \leq t \leq \pi$, eliminate the parameter to find a Cartesian equation of the curve, sketch the curve and indicate with an arrow the direction in which the curve is traced as the parameter increases.

2. Find the points on the curve $x = t^3 + 1$, $y = t^2 - 2t$ at which the tangent is horizontal or vertical. Find also $d^2y/dx^2$.

3. Find the area of the surface obtained by revolving about the $x$-axis the curve $x = t^2$, $y = 2t$, $0 \leq t \leq 4$.