NAME:

I.D.:

**Instruction**: Circle your answers and show all your work CLEARLY. Solutions with answer only and without supporting procedures will have little credit.

1. Given a curve with parametric equations $x = 3t \sin t$, $y = 3t \cos t$ and $z = 2t^2$, find the arc length from $t = 0$ to $t = 4/5$.

2. Given a curve $\mathbf{r}(t) = (t, t^2, t^3)$, find the unit tangent vector and unit normal vector of the curve at $(1, 1, 1)$.