

Show all work. 5 points each.

1. Find the equation of the tangent line to the curve $\mathbf{r}(t) = \langle t^5, t^4, t^3 \rangle$ at the point $(1, 1, 1)$

2. Find the equation of the normal plane of the curve $\mathbf{r}(t) = \langle 2 \sin(3t), t, 2 \cos(3t) \rangle$ at the point $(0, \pi, -2)$.