

Math 53 Discussion Problems Sept 26

1. For each of the curves, compute (i) the unit tangent vector $\mathbf{T}(t)$, (ii) the unit normal vector $\mathbf{N}(t)$, (iii) the binormal vector $\mathbf{B}(t)$, and (iv) the curvature $\kappa(t)$.
 - (a) $\mathbf{r}(t) = \langle t^3, 2t^3, -t^3 \rangle, t > 0$
 - (b) $\mathbf{r}(t) = \langle 3 \sin t, 3 \cos t, 4t \rangle$
 - (c) $\mathbf{r}(t) = \langle e^t \cos t, e^t \sin t, 2 \rangle$