

b) vetor tangente

$$T(t) = \frac{n'(t)}{\|n'(t)\|}$$

$$\|n'(t)\| = 3$$

$$n'(0,1,2) = (2 \cos(0), \sqrt{5}, -2 \sin(2))$$

$$T(t) = \frac{(2 \cos t, \sqrt{5}, -2 \sin t)}{3} =$$

$$t(0) = \left(\frac{2}{3}, \frac{\sqrt{5}}{3}, 0\right)$$

Normal $\rightarrow N(t) = \frac{T'(t)}{\|T'(t)\|}$

$$T'(t) = \left(-\frac{2}{3} \sin t, 0, -\frac{2}{3} \cos t\right)$$

$$\|T'(t)\| = \sqrt{\left(-\frac{2}{3} \sin t\right)^2 + \left(-\frac{2}{3} \cos t\right)^2}$$

$$\|T'(t)\| = \frac{2}{3}$$

$$N(t) = \frac{3}{2} \left(-\frac{2}{3} \sin t, 0, -\frac{2}{3} \cos t\right)$$

$$N(0,1,2) = \frac{3}{2} \left(-\frac{2}{3} \sin(0), 0, -\frac{2}{3} \cos(0)\right)$$

$$= (0, 0, -1)$$

$$N(t) = (-\sin t, 0, -\cos t)$$