

$$r(t) = \langle 2 \cos t, 3 \sin t \rangle \quad \text{radius } \frac{2}{9}$$

Find K a) $t = 0$

b) $t = \frac{\pi}{2}$

$$r'(t) = \langle -2 \sin t, 3 \cos t \rangle$$

$$T'(t)$$

$$\frac{r'(t)}{|r'(t)|} = \frac{\langle -2 \sin t, 3 \cos t \rangle}{\sqrt{4 \sin^2 t + 9 \cos^2 t}}$$

$$T' = \frac{\langle -2 \cos t, 3 \sin t \rangle}{4 + 5 \cos^2 t}$$

$$\frac{-3 \sin t \sqrt{\square} + \frac{1}{2} \frac{1}{\square} 5 \sin 2t (3 \cos t)}{4 + 5 \cos^2 t}$$

$$r'(0) = \langle 0, 3 \rangle \quad |r'| = 3 \quad K = \frac{6}{3} = 2$$

$$T'(0) = \langle \frac{1}{2}, 0 \rangle \quad |T'| = \frac{1}{2}$$

$$K = \frac{6}{2} = 3$$

$$r(t) = \langle \cos t, \sin t, t \rangle$$