

Tangential and Normal Components of Acceleration

T unit tangent vector; forward direction

N unit normal vector; path is turning

$B = T \times N$ unit binormal vector; twist

Acceleration vector $a = a_T T + a_N N$

Another formula for $a_n =$

$$r(t) = (t \cos t)i + (t \sin t)j + t^2 k, \quad t=0$$

$$r(t) = (\cos t)i + (\sin t)j - 6k, \quad t = -\frac{\pi}{6}$$

The torsion function of a smooth curve is

Formula T=

Vector formula for curvature $k =$

$$r(t) = (4 \sin 2t)i + (4 \cos 2t)j + 6tk$$