

Answer on Question #56120 – Math – Differential Geometry

Question

$$A = \sin t \mathbf{i} + \cos t \mathbf{j} + t \mathbf{k}$$

, find

$$\left\| \frac{d^2 A}{dt^2} \right\|$$

7

3

2

1

Solution

$$\frac{dA}{dt} = \cos t \mathbf{i} - \sin t \mathbf{j} + \mathbf{k}$$

$$\frac{d^2 A}{dt^2} = -\sin t \mathbf{i} - \cos t \mathbf{j} + 0 \mathbf{k}$$

$$\left\| \frac{d^2 A}{dt^2} \right\| = \sqrt{\sin^2 t + \cos^2 t} = 1$$