

Avery Turnbull Quiz 5

$$1) \quad r(t) = (\sin t)i + (\cos t)j + (t)k$$

$$r'(t) = \cos(t)i - \sin(t)j + 0k$$

$$r''(t) = -\sin(t)i - \cos(t)j + 0k$$

$$\frac{\|r'(t) \cdot r''(t)\|}{\|r'(t)\|^3} = \frac{\sqrt{2 \cos^2(t) + \sin^2(t)}}{\sqrt{(\cos^2(t) + \sin^2(t))^3}}$$

$$2) \quad r(t) = (t)i + (t^2)j + (5t)k$$

$$r'(t) = v(t) = i + (2t)j + 0k$$

$$r''(t) = a(t) = 0i + (2)j + 0k$$

$$s(t) = \|v(t)\|$$

$$= 2t$$