

Quid 4

1)

$$\begin{array}{l|l|l} \cos t = 1 & \sin t = 0 & t^2 + 1 = 1 \\ t = 0 & t = 0 & t = 0 \end{array} \quad r'(0) = 0, 1, 0$$

$$(1, 0, 1) + (t)(0, 1, 0) = (1, t, 1) \quad \boxed{x=1, y=t, z=1}$$

2)

$$\int (t \mathbf{i} + 2t \mathbf{j} + (t+1) \mathbf{k}) dt = \frac{t^2}{2} \mathbf{i} + 2t \mathbf{j} + \frac{t^2}{2} + t \mathbf{k} + C$$

$$r(0) \rightarrow \mathbf{i} + 2\mathbf{j} + 3\mathbf{k} = C \quad r(t) = \frac{t^2}{2} \mathbf{i} + (2t) \mathbf{j} + \left(\frac{t^2}{2} + t\right) \mathbf{k} +$$

$$r(t) = \left(1 + \frac{t^2}{2}\right) \mathbf{i} + (2+t) \mathbf{j} + \left(3 + \frac{t^2}{2} + t\right) \mathbf{k}$$