

9. <sup>SEGMENT 1</sup>  
 $(0, 0, 0) \rightarrow (3, 0, 0)$

$$x(t) = 3t \quad y(t) = 0 \quad z(t) = 0 \quad 0 \leq t \leq 1$$

$$\vec{r}(t) = 3t \vec{i} \quad 0 \leq t \leq 1$$

SEGMENT 2

$$(3, 0, 0) \rightarrow (3, 0, 2)$$

$$x(t) = 3 \quad y(t) = 0 \quad z(t) = 2t - 2 \quad 1 \leq t \leq 2$$

$$\begin{array}{ll} at+b=0 & at+b=2 \\ t=1 & t=2 \\ a+b=0 & 2a+b=2 \\ \underline{-a} & \underline{-b=0} \\ a & = 0 \\ b & = -2 \end{array}$$

$$\vec{r}(t) = 3\vec{i} + (2t-2)\vec{k} \quad 1 \leq t \leq 2$$

SEGMENT 3

$$(3, 0, 2) \text{ TO } (3, 1, 2) \quad 2 \leq t \leq 3$$

$$x(t) = 3 \quad y(t) = t - 2 \quad z(t) = 2$$

$$\begin{array}{ll} at+b=0 & at+b=1 \\ t=2 & t=3 \\ 2a+b=0 & 3a+b=1 \\ \underline{-2a} & \underline{-b=0} \\ a & = 1 \\ b & = -2 \end{array}$$

$$\vec{r}(t) = 3\vec{i} + (t-2)\vec{j} + 2\vec{k} \quad 2 \leq t \leq 3$$