

The line segment from $\mathbf{r}_0 = 4\mathbf{i} - 3\mathbf{j} + 6\mathbf{k}$ to $\mathbf{r}_1 = 7\mathbf{i} + 6\mathbf{j} + 3\mathbf{k}$ is

$$\begin{aligned}\mathbf{r}(t) &= (1-t)\mathbf{r}_0 + t\mathbf{r}_1 = (1-t)(4\mathbf{i} - 3\mathbf{j} + 6\mathbf{k}) + t(7\mathbf{i} + 6\mathbf{j} + 3\mathbf{k}) \\ &= (4\mathbf{i} - 3\mathbf{j} + 6\mathbf{k}) + t(3\mathbf{i} + 9\mathbf{j} - 3\mathbf{k}) \\ &= (4 + 3t)\mathbf{i} + (-3 + 9t)\mathbf{j} + (6 - 3t)\mathbf{k}, \quad 0 \leq t \leq 1.\end{aligned}$$