$\mathbf{r}(t) = 9t\,\mathbf{i} + 12t^{3/2}\,\mathbf{j} + 9t^2\,\mathbf{k} \quad \Rightarrow \quad \mathbf{r}'(t) = 9\,\mathbf{i} + 18\sqrt{t}\,\mathbf{j} + 18t\,\mathbf{k} \quad \Rightarrow$
$|\mathbf{r}'(t)| = \sqrt{81 + 324t + 324t^2} = \sqrt{(18t+9)^2} = |18t+9| = 18t+9$ for
$0 \le t \le 1$. Then $L = \int_0^1 |\mathbf{r}'(t)|\,dt = \int_0^1 (18t+9)\,dt = \Big[9t^2 + 9t\Big]_0^1 = 18$.