2013 Q4

4. The velocity, $v$, of a particle $P$ at time $t$ is given by

$$v = e^{3t} + 2e^t.$$

(a) Find the acceleration of $P$ at time $t$.

(b) Find the distance covered by $P$ between $t = 0$ and $t = \ln 3$.

Answers

(a) $a = 3e^{3t} + 2e^t$

(b) $\frac{38}{3}$ or $12\frac{2}{3}$