

Poll Question

$$v(t) = e^t + 4, \quad s(0) = 2$$

Find $s(t) = ?$

A) $s(t) = e^t + 1$

C) $s(t) = e^t + 4t + 11$

B) $s(t) = e^t - 2t + 2$

D) $s(t) = e^t + 4t + 1$

$$s(t) = \int v(t) dt = \int (e^t + 4) dt = e^t + 4t + C$$

($4t^0$)

$$\left. \begin{array}{l} s(t) = e^t + 4t + C \\ s(0) = 2 \end{array} \right\}$$

$$\begin{aligned} s(0) &= e^0 + 4 \cdot 0 + C = 2 \\ &= 1 + 0 + C = 2 \end{aligned}$$

$$\boxed{C = 1}$$