

13FE-3 The Laplace transform function for the output voltage of a network is expressed in the following form.

$$V_o(s) = \frac{12(s + 2)}{s(s + 1)(s + 3)(s + 4)}$$

Determine the final value of this voltage, that is, $v_o(t)$ as $t \rightarrow \infty$. **CS**

SOLUTION:

$$\lim_{t \rightarrow \infty} v_o(t) = \lim_{s \rightarrow 0} sV_o(s) = \lim_{s \rightarrow 0} \frac{12(s+2)}{(s+1)(s+3)(s+4)} = \frac{12(2)}{1(3)(4)} = 2$$

$$\boxed{\lim_{t \rightarrow \infty} v_o(t) = 2V}$$