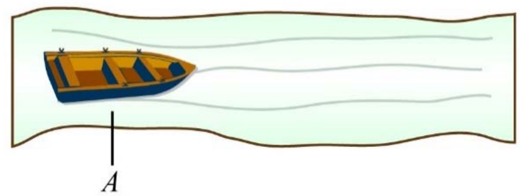
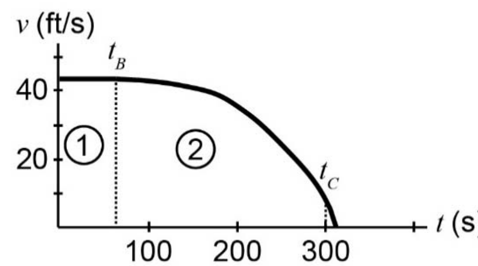
RP2-10) A boat going down river is travels at 25 knots (1 knot = 1.151 mph) relative to the shore for 1 minute before cutting its engines. The river current flows at 2 knots causing the boat's velocity relative to the shore to follow the function $v = 43.2 - \exp\left((t-60)/68\right)$ ft/s after the engines are cut, where t is in seconds. Determine the distance traveled by the boat in 5 minutes.





Given: $v_1 = 25 \text{ knots} = 42.2 \text{ ft/s}$

$v = 43.2 - \exp\left((t-60)/68\right)$ ft/s

$t_B = 1 \text{ min} = 60 \text{ s}$

$t_C = 5 \text{ min} = 300 \text{ s}$

Find: s_C

Solution:

Find s_B.

s_B = ________________________

Find s_C.

s_C = ________________________