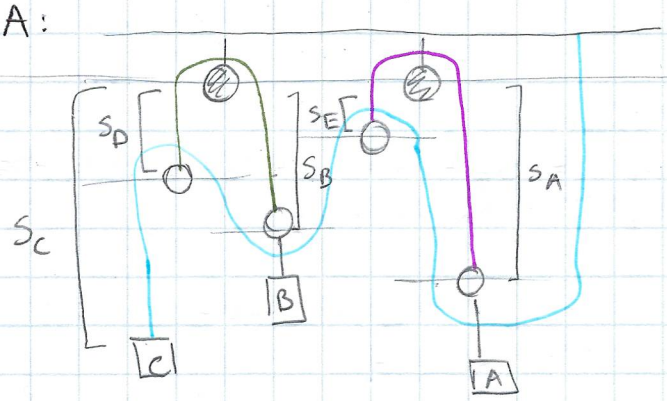
20-P-KM+AF-025

Dependent Motion: Intermediate

Q: If at point C the block is pulled down w/ C m/s, downwards. If block B is pushed up with B m/s, What is A m/s?

A:



$l_1^{(blue)} = S_A + S_A - S_E + S_B - S_E + S_C - S_D + S_B - S_D$

$l_2^{(green)} = S_B + S_D$

$l_3^{(purple)} = S_E + S_A$

$0 = 2V_A + 2V_B + V_C - 2V_D - 2V_E$

$0 = V_B + V_D$

$0 = V_E + V_A$

$V_B = B$

$V_C = -C$

$V_E = -V_A$

$V_D = -V_B$

$0 = 2V_A + 2V_B + V_C - 2(-V_B) - 2(-V_A)$

$0 = 4V_A + 4V_B + V_C$

$V_A = \frac{-4V_B - V_C}{4} = \frac{-4(B) - (-C)}{4}$