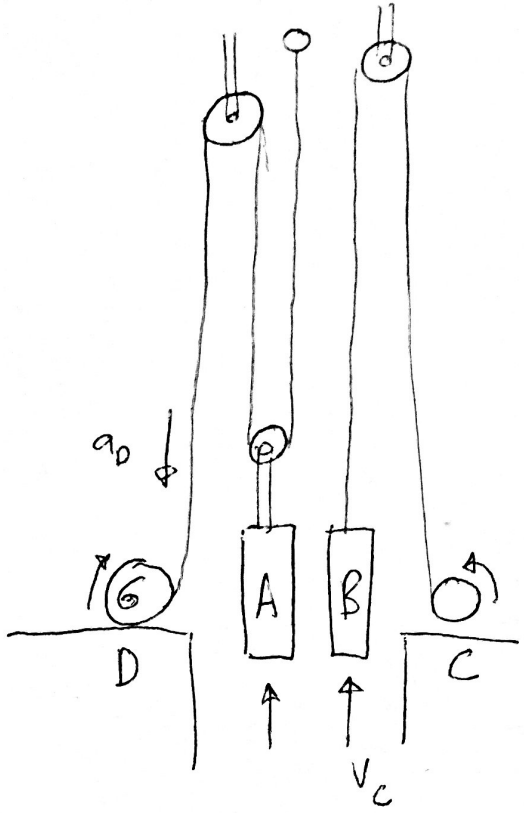

A: $V_i = 0$

d = 3 metres $\times 2$

$a = a_D$

$t = ?$

$d = V_i t + \frac{1}{2} a t^2$

$t = \sqrt{\frac{2d}{a}}$

where you multiply $d \times 2$ because of dependent motion

$t = \sqrt{\frac{2 \times 2d}{a}}$

A & B: want to find d when $V_f = V_c$

V_i, V_f, a, d

$d = \frac{V_f^2 - V_i^2}{2a} \times 2$ (DM)

$t = \frac{V_f}{a}$

$d_c = V_c t = \frac{V_f^2}{a}$

$\Delta d = d - d_c = 0$