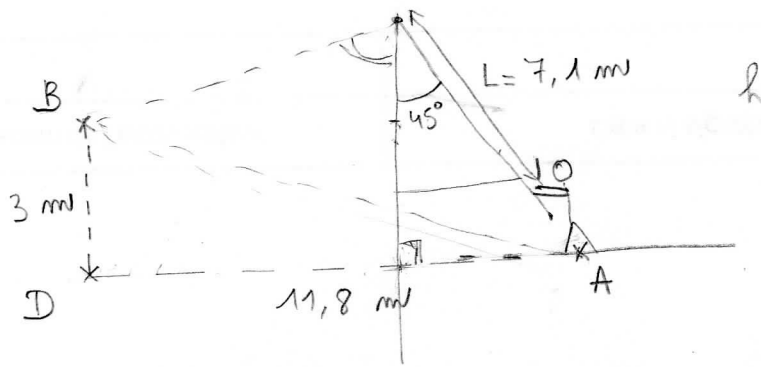
3)

$\cos\theta = \frac{L - h}{L}$

$h = L(1 - \cos$



La vitesse initiale minimale

Théorème de l'énergie mécanique entre A départ et B arrivée

$$E_m(B) - E_m(A) = 0$$

$$\Leftrightarrow E_c(B) + E_{pp}(B) - E_c(A) - E_{pp}(A) = 0$$

$$\Leftrightarrow 0 + mg? - \frac{1}{2}mv^2 - mgL = 0$$

$$E_m(B) - E_m(A) = 0$$

$$\Leftrightarrow E_c(B) + E_{pp}(B) - E_c(A) - E_{pp}(A) = 0$$

$$\Leftrightarrow 0 + mgH - \frac{1}{2}mv_0^2 - mgh_0 = 0$$

$$\Leftrightarrow mg(h_0 + 3) - \frac{1}{2}mv_0^2 - mgL(1 - \cos\theta) = 0$$

$$\Leftrightarrow mg(h_0 + 3) = \frac{1}{2}mv_0^2 + mgL(1 - \cos\theta)$$