# RESOLUÇÃO – PROVA DISCURSIVA

**FÍSICA – 1º SÉRIE – PROF. RENATO BERENGUEL – DATA: 28/04/2018**

**QUESTÃO 06:** ➤ QUESTÃO 02/LISTA 05

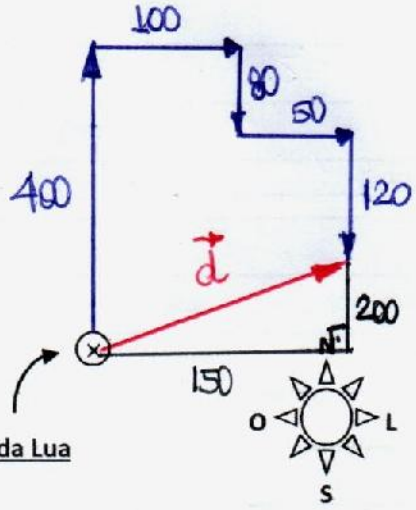
Espaço reservado para o desenho:

(a) * $\Delta S = 400+100+80+50+120 = 750\,m$

↳ $V_m = \frac{\Delta S}{\Delta t} = \frac{750}{1000} = 0{,}75\,m/s$

$V_m = 75\,cm/s$

⊙ $\Delta t = 16\,min + 40s = 1000s$



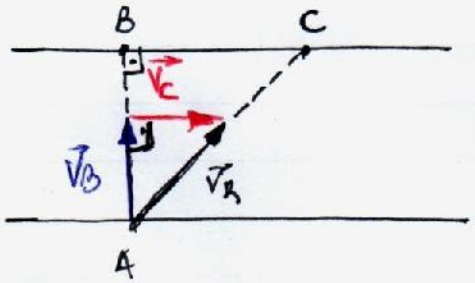

(b) * $|\vec{d}| = 250\,m$ (PITÁGORAS)

↳ $|\vec{V_m}| = \frac{|\vec{d}|}{\Delta t} = \frac{250}{1000} = 0{,}25\,m/s$

$|\vec{V_m}| = 25\,cm/s$

**QUESTÃO 07:** ➤ QUESTÃO 01 / LISTA 06

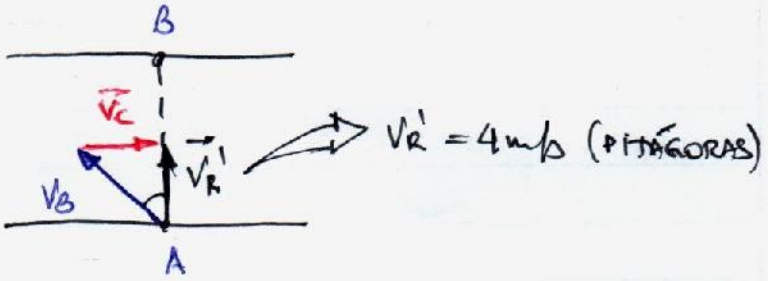
(a) * $\Delta t = \frac{d_{AB}}{V_B} = \frac{240}{5} \rightarrow \Delta t = 48s$



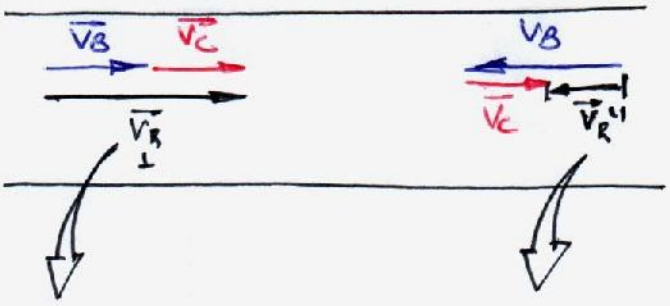

(b) * $\Delta t = \frac{d_{BC}}{V_C} \rightarrow 48 = \frac{d_{BC}}{3} \rightarrow d_{BC} = 144\,m$

(c) * $\Delta t = \frac{d_{AB}}{V_R'} = \frac{240}{4} = 60$

$\Delta t = 60s$



**QUESTÃO 08:** ↪ QUESTÃO 05 / LISTA 6




$V_{R_1} = V_B + V_C$

$\frac{120}{2} = V_B + V_C$

$60 = V_B + V_C$ (2)

$V_{R_2} = V_B - V_C$

$\frac{120}{3} = V_B - V_C$

$40 = V_B - V_C$ (3)

(+)

$100 = 2V_B$

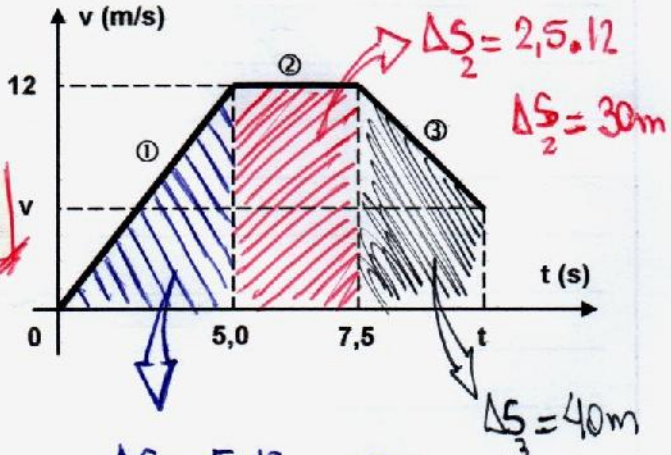
$V_B = 50 km/h$ e $V_C = 10 Km/h$

---

**QUESTÃO 09:** ↪ QUESTÃO 01 / LISTA DO SITE

(a) * Pelo texto, temos:

$V_m = \frac{\Delta S}{\Delta t} \rightarrow 8 = \frac{100}{\Delta t} \rightarrow \Delta t = 12,5 s$




$\Delta S_2 = 2,5 . 12$

$\Delta S_2 = 30m$

$\Delta S_3 = 40m$

(b) * Pelo gráfico ao lado, temos:

$\Delta S_1 = \frac{5 . 12}{2} = 30m$

$\Delta S_T = \Delta S_1 + \Delta S_2 + \Delta S_3$

$100 = 30 + 30 + \Delta S_3$

$\Delta S_3 = 40m$

(último trecho)

Então: $\Delta S_3 = \frac{(b+B).h}{2}$

$40 = \frac{(V+12).5}{2}$

$V = 4 m/s$

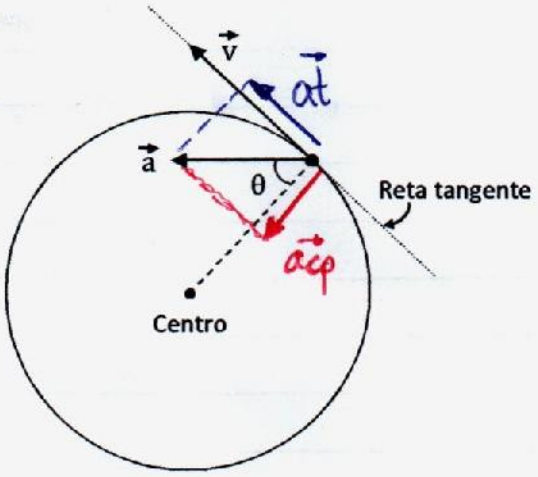
**QUESTÃO 10:** → Questão 18 / Lista 05

(a) * $\sin\theta = \frac{a_t}{a} \rightarrow 0{,}6 = \frac{a_t}{15}$

$a_t = 9\ m/s^2$

* $\cos\theta = \frac{a_{cp}}{a} \rightarrow 0{,}8 = \frac{a_{cp}}{15}$

$a_{cp} = 12\ m/s^2$




(b) * $a_{cp} = \frac{v^2}{R} \rightarrow 12 = \frac{v^2}{3} \rightarrow v = 6\ m/s$

---

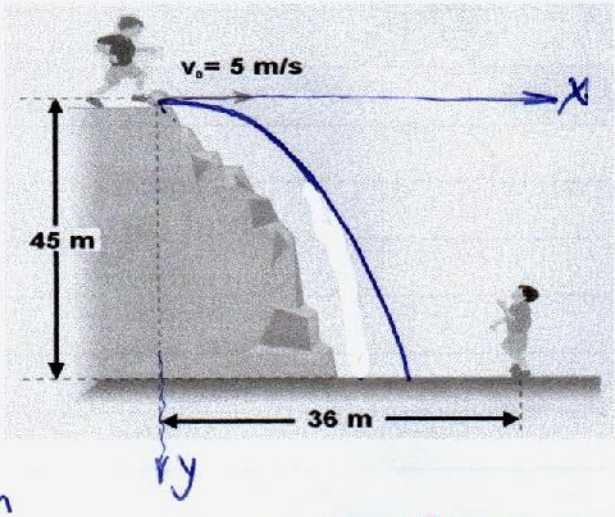
**QUESTÃO 11:** → Questão 168/pg 171

(a) * Eixo "y": $S_y = S_{0y} + V_{0y}.t + \frac{gt^2}{2}$

$45 = \frac{10.t^2}{2}$

$t = 3\ s$

(b) * Eixo "x": $S_x = S_0 + V_x.t$




$S_x = 5.3 = 15\ m$

PORTANTO: $d = 36 - 15 = 21\ m \rightarrow d = 21\ m$

(À FRENTE DO 2º GAROTO)

(c) * P/ 2º garoto, temos:

$V_m = \frac{d}{\Delta t} = \frac{21}{3} \rightarrow V_m = 7\ m/s$

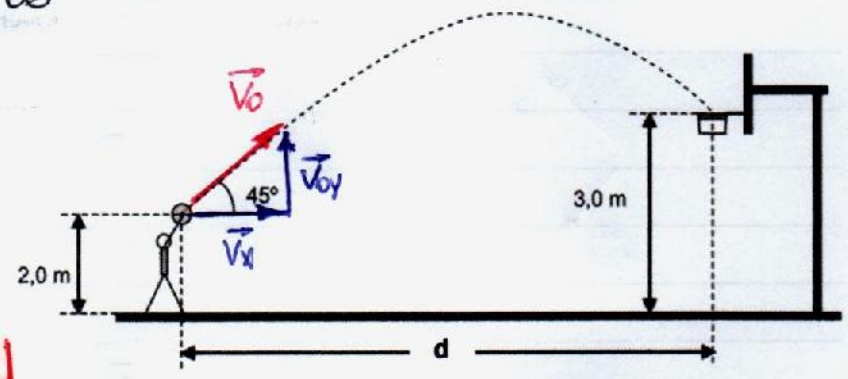
**QUESTÃO 12:** → QUESTÃO 17/LISTA 06

(a) "y": $V_y^2 = V_{oy}^2 - 2.g.\Delta S$

$0 = 6^2 - 2.10.\Delta S$

$\Delta S = 1{,}8\ m$

ENTÃO: $h_{máx} = 3{,}8m$




(b) "y": $S_y = S_{oy} + V_{oy}.t - \frac{g.t^2}{2}$

$3 = 2 + 6.t - 5t^2$

$5t^2 - 6t + 1 = 0 \quad (\Delta = 16)$

$t = \frac{6 \pm 4}{10}$ → $t' = 0{,}2\Delta$ ; $t'' = 1{,}0\Delta$

(*) $V_x = V_{oy} = V_o.\cos 45° = 6\sqrt{2}.\frac{\sqrt{2}}{2}$

$V_x = V_o = 6\ m/s$ ATENÇÃO!

(c) "x": $S_x = S_0 + V_x.t$

$d = 6.1$

$d = 6m$

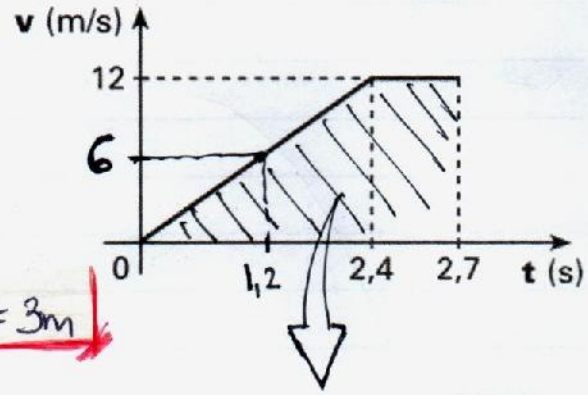
---

**QUESTÃO EXTRA:** → QUESTÃO 20/LISTA 06

(a) $\Delta S = 2\pi R$ (1 volta)

$\frac{(b+B).h}{2} = 2.\pi.R$

$\frac{(0{,}3 + 2{,}7).12}{2} = 2.3.R \rightarrow R = 3m$




(ΔS DE 1 volta)

(b) * P/ $t = 1{,}2\Delta$, temos: $V = 6\ m/s$ (GRÁFICO)

ASSIM, temos:

$a_t = \frac{\Delta V}{\Delta t} = \frac{6}{1{,}2} = 5\ m/s^2$

$a_{cp} = \frac{V^2}{R} = \frac{6^2}{3} = 12\ m/s^2$

$a_R = \sqrt{a_t^2 + a_{cp}^2} \rightarrow a_R = 13\ m/s^2$