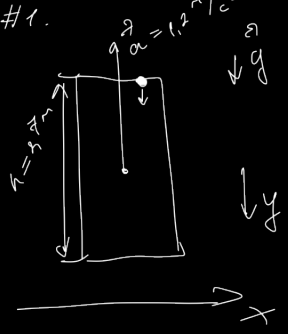
#1.



Have!

$a_1 = 1{,}2\ м/с^2$

$g = 9{,}8\ м/с^2$

$h = 2{,}7\ м$

$t = 2\ с$

$t_б, \Delta y, S - ?$

а) $y = y_0 + \vec{v}_y t + \frac{\vec{a}_y t_1^2}{2}$

$y = 0,\ y_0 = h,\ v_y = 0;$

$a_y = \vec{a} - \vec{g} \Rightarrow -(g + a)$

$h = \frac{(g+a)\,t_1^2}{2};$

$\sqrt{\frac{2h}{g+a}} = t_1 \Rightarrow t_1 = \sqrt{\frac{2 \cdot 2{,}7}{9{,}8 + 1{,}2}}\ с =$

$= \sqrt{\frac{5{,}4}{10}}\ с =$

$= \sqrt{0{,}54}\ с \approx 0{,}7\ с$

б) $v_1 = \vec{a}_1 \cdot t;$

Опис. мяча!

$y = y_0 + \vec{v}_0 t_1 + \frac{\vec{a} t_1^2}{2};$

$v_б = v_1 = v_0 = \vec{a}_1 \cdot t \Rightarrow -a_1 \cdot t$

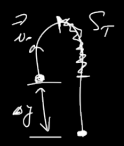
$a = \vec{g} \Rightarrow g$

$\Delta y = -a_1 \cdot t \cdot t_1 + \frac{g \cdot t_1^2}{2}$

$\Delta y = -1{,}2 \cdot 2 \cdot 0{,}74 + \frac{9{,}8 \cdot 0{,}74^2}{2}\ м = 0{,}72\ м$

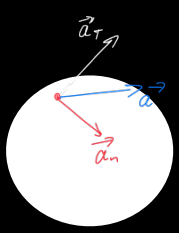
$S = |\Delta y| + 2 S_T = |\Delta y| + 2 \cdot \left(\frac{v_1^2}{g}\right) =$

$= 0{,}72 + 2 \cdot \frac{2{,}4^2}{9{,}8}\ м = 1{,}3\ м$



Ответ: а) 0.7с
б) 0.72м;
1.3 м

#2.



Have!

$v = a_1 t$

$n = 0{,}1 \cdot 2\pi\ r$

$a_T = 1/2\ м/с^2$

$a - ?$

$a_T = const \Rightarrow S = \frac{a_T t^2}{2} = n \cdot 2\pi r$

$t^2 = \frac{4\pi r n}{a_T};$

$a_n = a_y = \frac{v^2}{r};$

$a_n = \frac{a_T^2 \cdot t^2}{r};\quad a_n = \frac{4\pi r \cdot a_T^2 \cdot n}{r \cdot a_T} =$

$= 4\pi n \cdot a_T$

$a = \sqrt{a_T^2 + a_n^2} =$

$= \sqrt{a_T^2 + 16\pi^2 n^2 \cdot a_T^2} = a_T \sqrt{1 + 4(4\pi n)^2} =$

$= 1/2 \cdot \left((1 + (4 \cdot 3.14 \cdot 0{,}1)^2\right)^{1/2}\ м/с^2 =$

$= 0.8\ м/с^2$

Ответ: $0.8\ м/с^2$