

高一物理问题,会的来

最大加速度 $a = F/m = 7\text{N}/0.6\text{Kg} = (35/3)\text{m/s}^2$
 $a = V^2/R$ 最小半径 $R = V^2/a = (2\text{m/s})^2 / (35/3)\text{m/s}^2 = (12/35)\text{m} = 0.34\text{m}$
每绕半圈, 半径少 0.1m , 绕 3.5 圈后绳子短于 0.34m , 会断掉
 $\omega_1 = V_0/R_1 = 2\text{m/s} \div 1\text{m} = 2\text{rad/s}$
 $\omega_2 = V_0/R_2 = 2\text{m/s} \div 0.9\text{m} = (20/9)\text{rad/s}$
 $\omega_3 = V_0/R_3 = 2\text{m/s} \div 0.8\text{m} = 2.5\text{rad/s}$
 $\omega_4 = V_0/R_4 = 2\text{m/s} \div 0.7\text{m} = (20/7)\text{rad/s}$
 $\omega_5 = V_0/R_5 = 2\text{m/s} \div 0.6\text{m} = (10/3)\text{rad/s}$
 $\omega_6 = V_0/R_6 = 2\text{m/s} \div 0.5\text{m} = 4\text{rad/s}$
 $\omega_7 = V_0/R_7 = 2\text{m/s} \div 0.4\text{m} = 5\text{rad/s}$
 $T = t_1 t_2 t_3 t_4 t_5 t_6 t_7 = \pi/\omega_1 \pi/\omega_2 \pi/\omega_3 \pi/\omega_4 \pi/\omega_5 \pi/\omega_6 \pi/\omega_7 = (0.5\pi)\text{s} (0.45\pi)\text{s} (0.4\pi)\text{s} (0.35\pi)\text{s} (0.3\pi)\text{s} (0.25\pi)\text{s} (0.2\pi)\text{s} = (2.45\pi)\text{s}$
2.1) 前 5s 匀加速直线运动, 后 10s 匀加速曲线运动, 类似平抛
2.2) 前 5s 的加速度 $a_1 = F_1/m = 1\text{N}/0.5\text{Kg} = 2\text{m/s}^2$
 5s 末的速度即 15s 末正东方向的分速度 $V_1 = a_1 t_1 = 2\text{m/s}^2 \times 5\text{s} = 10\text{m/s}$
后 10s 的加速度 $a_2 = F_2/m = 0.5\text{N}/0.5\text{Kg} = 1\text{m/s}^2$
向北加速 10s 的速度即 15s 末正北方向的分速度 $V_2 = a_2 t_2 = 1\text{m/s}^2 \times 10\text{s} = 10\text{m/s}$
合速度 $V = \sqrt{(V_1^2 + V_2^2)} = \sqrt{[(10\text{m/s})^2 + (10\text{m/s})^2]} = 10\sqrt{2}\text{m/s}$
北偏东 θ 角 $\text{tg}\theta = V_1/V_2 = (10\text{m/s})/(10\text{m/s}) = 1$
 $\theta = 45^\circ$

什么叫ST血色~~

从后门 也能进去 需要血色十字军钥匙