

Answer on Question #55255, Physics / Other

Task: 2 kilogram mass object thrown vertically upward from the ground and fell to the ground after moving 6s. when the Earth's gravitational acceleration 9.8 m / s^2 , the maximum height that can be achieved the object is m

Solution:

if there is no air resistance, the rise time (t_1) and fall time are the same

$V=V_0-gt$, $V=0$ (speed at the maximum height), so $V_0=gt_1$, $t_1=V_0/g=3\text{s}$.

$$h=V_0t-gt^2, h_{\max}=g(t_1)^2/2 =9.8*3^2/2=44.1\text{m}$$

Answer:44.1m

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