

Answer on Question 49995, Physics, Mechanics — Kinematics — Dynamics An object which at rest at a height 10m above the ground, falls on the ground and penetrates 25 cm in to the ground. If the ground resistance force is 1kN, calculate the mass of the object.

Solution

We will use energy conservation law here. Potential energy of object mgh at the beginning is equal to work done, during penetrating the ground. Hence

$$mgh = F\Delta l$$

$$m = \frac{F\Delta l}{gh} \approx 2.55 \text{ kg}$$

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