

Answer on Question 69332, Physics, Other

Question:

A flowerpot falls from a windowsill 25.0 m above the sidewalk. How fast is the flowerpot moving when it strikes the ground?

Solution:

We can find the velocity of the flowerpot when it strikes the ground from the kinematic equation:

$$v^2 = v_0 + 2gh,$$

here, $v_0 = 0$ is the initial velocity of the flowerpot, v is the velocity of the flowerpot when it strikes the ground, $h = 25 \text{ m}$ is the height of the windowsill above the sidewalk and $g = 9.8 \text{ m/s}^2$ is the acceleration due to gravity.

Then, we get:

$$v = \sqrt{2gh} = \sqrt{2 \cdot 9.8 \frac{\text{m}}{\text{s}^2} \cdot 25.0 \text{ m}} = 22.1 \frac{\text{m}}{\text{s}}.$$

Answer:

$$v = 22.1 \frac{\text{m}}{\text{s}}.$$

Answer provided by <https://www.AssignmentExpert.com>