Answer on Question 62535, Physics, Mechanics, Relativity

Question:

How long does it take a pen to hit the ground if it is released from rest $1.2\ m$ above the ground?

Solution:

Let's find the time that the pen takes to hit the ground if it is released from rest $1.2\ m$ above the ground. Because the initial velocity of the pen along y-axis equals to zero (it is released from rest), we can write:

$$h = \frac{1}{2} g t^2,$$

here, h is the height above the ground, t is the time and g is the acceleration of gravity.

Then, from this formula we can calculate the time:

$$t = \sqrt{\frac{2h}{g}} = \sqrt{\frac{2 \cdot 1.2\ m}{9.8\ \frac{m}{s^2}}} = 0.49\ s.$$

Answer:

$t = 0.49\ s.$