

Answer on Question #68278- Physics / Mechanics | Relativity

A $m = 5.0$ kg block is dropped from a height of $h = 0.5$ m onto a vertical spring whose force constant is $k = 2050$ N/m. Find the maximum distance that the spring will be compressed.

Solution:

From the conservation energy law

$$mgh = \frac{kx^2}{2}$$

Thus the maximum distance that the spring is compressed

$$x = \sqrt{\frac{2mgh}{k}} = \sqrt{\frac{2 \times 5.0 \times 9.8 \times 0.5}{2050}} = 0.15 \text{ m.}$$

Answer: 0.15 m.

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