Answer on Question #72071-Physics-Other

A ball is dropped from a height of 19.6m above the ground and after hitting the ground it rises its initial height. Draw a velocity-time graph of the ball. Neglect the small time interval during which the ball was in contact with the ground.

Solution

Before hitting the ground:

$$v = -9.8t.$$

$$T = \sqrt{\frac{2h}{g}} = \sqrt{\frac{2(19.6)}{9.8}} = 2\ s.$$

$$V = -9.8(2) = -19.6\frac{m}{s}.$$

After hitting the ground:

$$v = 19.6 - 9.8(t - 2).$$

A velocity-time graph of the ball: