

## Answer on Question #62505 - Physics - Atomic and Nuclear Physics

### Question:

Calculate the instantaneous speed of an apple that falls freely from a rest position and accelerates at  $10\text{m/s}^2$  for 1.5 seconds.

---

### Solution:

Let  $v_0$  — initial speed of an apple,  
 $a$  — its acceleration,  
 $t$  — time,  
 $v_t$  — instantaneous speed at moment  $t$ .

We can write that  $v_t = v_0 + a \cdot t$ .

Because an apple falls from a rest position  $v_0 = 0\text{m/s}$   
and then  $v_t = 0 + 10 \cdot 1.5 = 15\text{m/s}$

---

### Answer:

$15\text{m/s}$