

1. The only acceleration involved is that of gravity, so this is an example of uniformly accelerated motion for which the relationship between velocity, acceleration and time is given as $v = v_0 + a t$. Here the initial velocity, v_0 , is given as zero and the acceleration is that of gravity and is directed downward. If the positive direction is chosen as upward, $a = g = -9.8 \text{ m/s}^2$ so we have

$$v = 0 + a t$$

$$v = (-9.8 \text{ m/s}^2) (2 \text{ s})$$

$$v = -19.6 \text{ m/s}$$

Note the negative sign indicating that the velocity is downward (recall that the upward direction was chosen as positive).