1. A worker drops a wrench from the top of a tower 87.0 m tall. What is the velocity when the wrench strikes the ground?

$h = 87\,m$ $g = 9.8\frac{m}{s^2}$	*Solution.* A wrench moves under the force of gravity. Its movement is with the constant acceleration g from the rest, so the distance depends on time as:
$v - ?$	$$y = \frac{g\,t^2}{2}. \quad (1)$$

And the velocity depends linearly on time:

$$v = at. \quad (2)$$

Lets express the time of the falling from the Eq. (1) and substitute it into the Eq. (2).

$$h = \frac{g\,t^2}{2}, \quad t = \sqrt{\frac{2h}{g}}.$$

$$v = g \cdot \sqrt{\frac{2h}{g}} = \sqrt{2\,g\,h}.$$

So, the velocity of the wrench, when it strikes the ground, is: $\boxed{v = \sqrt{2\,g\,h}}$.

Let check the dimension.

$$[v] = \sqrt{\frac{m}{s^2} \cdot m} = \sqrt{\frac{m^2}{s^2}} = \frac{m}{s}.$$

Let evaluate the quantity.

$$v = \sqrt{2 \cdot 9.8 \cdot 87} \approx 41.3\left(\frac{m}{s}\right).$$

Answer: $41.3\frac{m}{s}$.