## Answer on Question\#54247-Physics - Other

A bubble originating at the bottom of a lake rises to the surface within 10.0 seconds with an acceleration of 10.0 meters/second 2 . What is the depth of the lake?

## Solution:

The depth of the lake is given by

$$
h=\frac{a \cdot t^{2}}{2},
$$

where $a$ - is the acceleration of the bubble, and $t$ - is the time it took the bubble to reach the surface.

Since $a=10 \frac{\mathrm{~m}}{\mathrm{~s}^{2}}$ and $t=10 \mathrm{~s}$, we obtain

$$
h=\frac{a \cdot t^{2}}{2}=\frac{10 \frac{\mathrm{~m}}{\mathrm{~s}^{2}} \cdot(10 \mathrm{~s})^{2}}{2}=500 \mathrm{~m}
$$

Answer: 500m.

