A bubble originating at the bottom of a lake rises to the surface within 10.0 seconds with an acceleration of 10.0 meters/second2. 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 $a = 10 \frac{\text{m}}{\text{s}^2}$ and t = 10s, we obtain

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

Answer: 500m.

http://www.AssignmentExpert.com/