

Answer on Question #74039, Physics / Molecular Physics | Thermodynamics

Question. A brick is dropped from 100 m up. Find its impact velocity and air time.

Given. $h = 100 \text{ m}; v_0 = 0$.

Find. v, t —?

Solution.

So

$$h = v_0 t + \frac{gt^2}{2} \rightarrow h = \frac{gt^2}{2} \rightarrow t = \sqrt{\frac{2h}{g}} = \sqrt{\frac{2 \cdot 100}{9.81}} = 4.52 \text{ s.}$$

For velocity

$$v = v_0 + gt \rightarrow v = gt = 9.81 \cdot 4.52 = 44.34 \text{ m/s.}$$

Answer. $v = 44.34 \text{ m/s}; t = 4.52 \text{ s}$.

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