

Answer on Question #72493-Physics-Classical Mechanics

How long object free falls if in last 2 s object falls 60 m?

Solution

$$h = \frac{gt^2}{2}$$

$$h - 60 = \frac{g(t - 2)^2}{2}$$

$$\frac{gt^2}{2} - 60 = \frac{g(t - 2)^2}{2}$$

$$\frac{gt^2}{2} - 60 = \frac{gt^2}{2} - 2gt + 2g$$

$$t = \frac{30}{g} + 1 = \frac{30}{10} + 1 = 4 \text{ s.}$$

Answer: 4 s.

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