Question 36376

Frog falls a distance $12\,m$. Since it has no initial velocity, the law of motion for vertical position of frog is $y(t) = y_0 - \dfrac{g\,t^2}{2}$. Hence, for distance $y_0 - y = 12\,m$, $t = \sqrt{\dfrac{2 \cdot 12\,m}{9.81\,\dfrac{m}{s^2}}} = 1.56\,s$ - this is the time for falling 12 m.