A water balloon is dropped on a bull's-eye target from a stationary hot air balloon. if the water balloon accelerates downward at nine. 81 m/s squared, how long will it take to hit the target?

Answer:

The equation of motion of water ballon is

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

Where t is tine, h is height of air balloon

Whence, we get that the water balloon hits a target after time $t_0 = \sqrt{\frac{2h}{g}}$