

A model rocket rises with constant acceleration to a height of 3.3m, at which this point its speed is 28.0 m/s . How much time does it take to reach this height?

Assuming that initial speed is 0 we can write an equation for body, which moving with constant acceleration:

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

We know rocket speed at this height, so we can find acceleration:

$$a = \frac{v}{t}$$

$$h = \frac{vt^2}{2t} = \frac{vt}{2} \rightarrow t = \frac{2h}{v}$$

$$t = \frac{2 * 3.3m}{28m/s} \cong 0.24s$$

Answer: $t \cong 0.24s$