

Questions are taken from the course book '*Physics with modern physics*', Richard Wolfson & J. M. Pasachoff,

Question:

A model rocket is launched straight upward; its altitude y as a function of time is given by $y = bt - ct^2$, where $b = 68 \text{ m/s}$, $c = 4.9 \text{ m/s}^2$, t is the time in seconds, and y is in meters.

- (a) Use differentiation to find a general expression for the rocket's velocity as a function of time.
- (b) When is the rocket's velocity zero.