

Directions: Show all your work and label all your units!!!!

Formula's:

$$v = \frac{d}{t} \quad v = \frac{v_f + v_o}{2} \quad a = \frac{v_f - v_o}{t} \quad v_f = v_o + at$$
$$d = v_o t + \frac{1}{2} at^2 \quad v_f^2 = v_o^2 + 2 ad \quad x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2 a}$$

1. An Automobile can be accelerated from 10 km/hr to 25 km/hr in 3.0 seconds. What is the acceleration in m/s^2 ? (1.39 m/s^2) 5 points.
2. What velocity is attained by an object that is accelerated at $0.85 m/s^2$ for a distance of 150 m, if its initial velocity is 5 m/s? (16.73 m/s) 5 points.
3. A ball is thrown from the ground to the top of a large tree. If it returns to the ground after 12.0 seconds, what is the height of the tree in meters? (176.4 m – Big Tree) 5 points.

Bonus:

A bag of mail is released from an ascending helicopter that is rising at 7 m/s. What time is required for the mail to reach the ground if released 175 meters above the surface. (6.73 sec) 5 points.