

Planet Holloway **websheet 3.2**

AP Physics C - Chapter 3

You may print this out and write on it or work on your own paper.

Show all work.

1. An object has an acceleration of $2.5t^2$. What is the equation for the objects velocity if at time zero, the object is at rest? What if at time zero, the initial velocity is 7 m/s?
2. A fly has a velocity given by $v = 13 - 2t$. What is the equation for the position of the fly? What is the fly's position after 4 seconds?
3. A car has a velocity given by $v = 2t^3$. What is its position of the car at 4 seconds assuming that it started from rest?
4. An object has an acceleration of 12 m/s^2 . What is the position of the object at 3 seconds if the velocity at time zero is 3 m/s?
5. A car has an acceleration described by $a = 4.5t$. The initial velocity of the car is 8 m/s. What is the position of the car after 10 seconds.
6. If the acceleration of an object is described by $a = 3 - 2t^2$, what is the formula for position, given that the initial velocity was 40 m/s?

Answers:

$$1.. v = \frac{2.5t^3}{3}, \quad v = \frac{2.5t^3}{3} + 7$$

I assumed standard SI units for the following problems

$$2. x = 36 \text{ m}$$

$$3. x = 128 \text{ m}$$

$$4. x = 63 \text{ m}$$

$$5. x = 830 \text{ m}$$

$$6. x = 40t + \frac{3t^2}{2} - \frac{t^4}{6}$$