Physics Unit A Day 5

Objectives

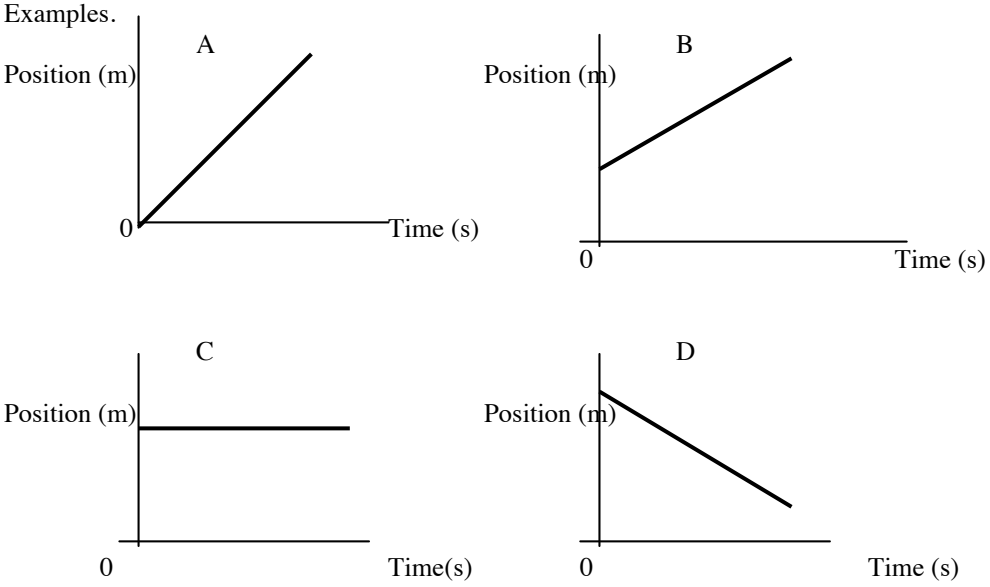
- Describe in words the information presented in graphs and draw graphs from descriptions of motion
- Interpret graphs of position versus time for a moving object to find position and velocity
- Find velocity of object using slope of line of position versus time graphs.

1. Homework check and discuss.

2. Position versus Time graphs

Position versus time graphs describe the position of an object as a function of time

Examples.



Descriptions of motion:
A – object starts from reference point and moves away from reference point
B – object starts at a point away from the reference point and increases position (moves further away)
C – object is not moving (stationary)
D – object starts away from the reference point and decreases position (moves towards the reference point)

3. Using the graph of position versus time

a. interpolation – to find positions between known points on the graph
b. extrapolation – to find positions beyond known points on the graph
c. slope of line
use graph B as an example, slope = $\Delta d / \Delta t$ (Have we seen this relationship before?)

the slope of the position time graph represents the average velocity of an object

d. type of curve – if the graph of position versus time is a straight line then the object is traveling at a constant rate and is moving uniformly (all points along a straight line have equal slope therefore velocity is equal).

4. Writing equations from position and time

From slope of position versus time graph $v = \frac{\Delta d}{\Delta t} = \frac{d_f - d_i}{t - t_i}$ di = starting position, ti = 0

5. Assign. Ch 2: #9, 11 – 13, 15 – 18, 21 – 24, 25, 27, 29,32, 41, 46, 48, 54, 58, 62, 64