March 18, 2019

Pass in Acceleration Assignment

notes on graphing acceleration

!!!Test next Tuesday Chp 10!!!

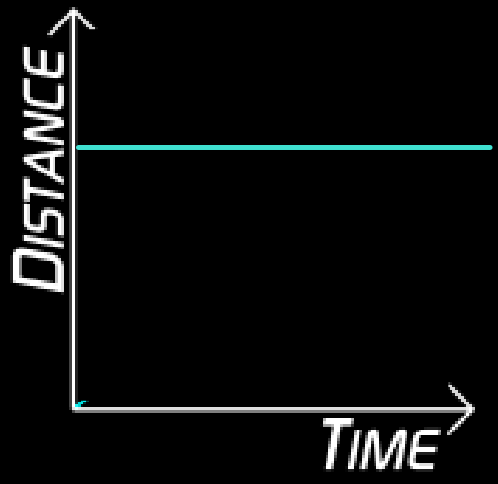
Warm-Up

1. How long will it take a car to go from 0km/h to 44 km/hr if they are accelerating at 5 km/hr^2?

$$t = \frac{v_f - v_i}{a} = \frac{44\text{km/h} - 0\text{km/h}}{5\text{km/h}^2} = \frac{44\text{km/h}}{5\text{km/h}^2} = 8.8\text{ hr}$$

To Review: We looked at distance time graphs in the last chapter.

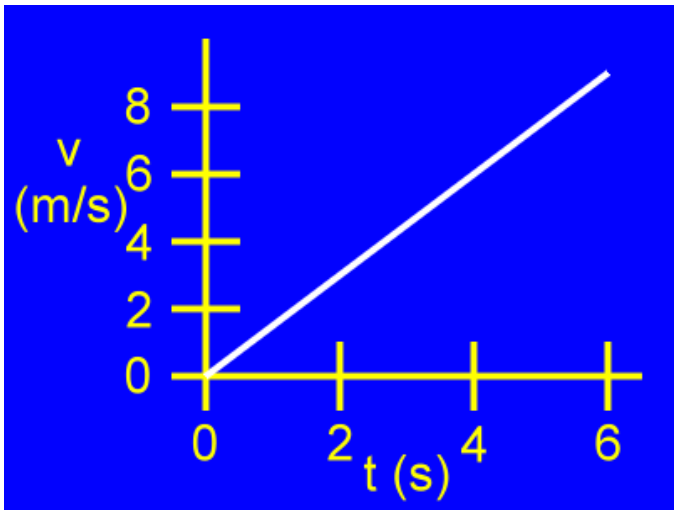
What does the line on a distance-time graph represent?
How would you describe the motion of these graphs?



Acceleration can be shown on a velocity vs time graph

Velocity is plotted on the y-axis

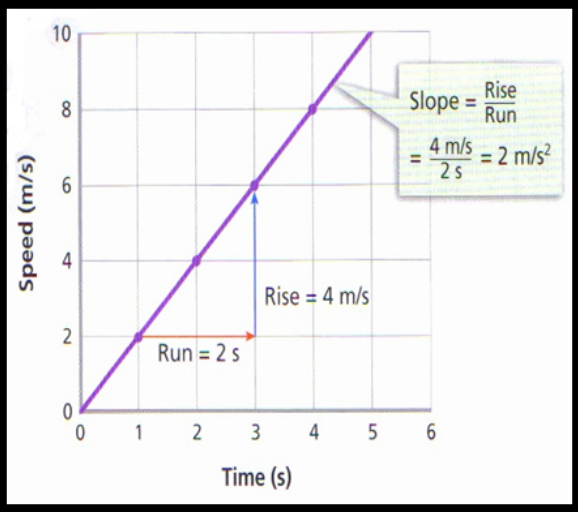
Time is plotted on the x-axis



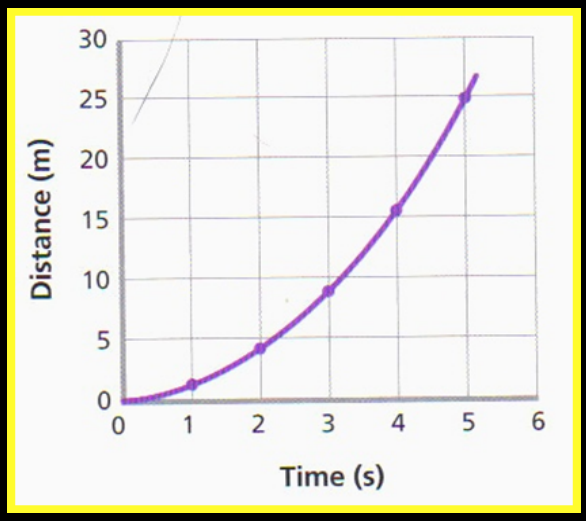
The line/slope on a (v) vs (t) graph represents **acceleration**

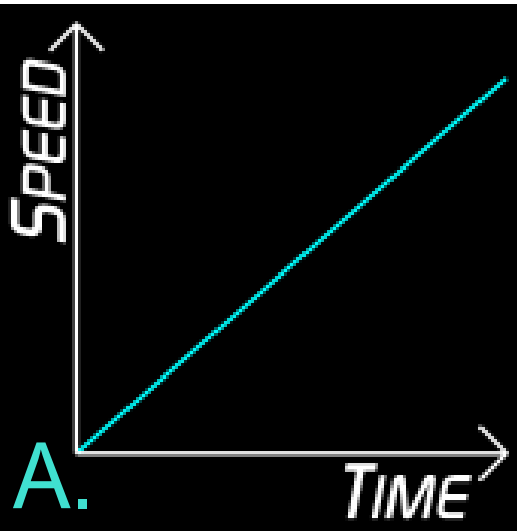
GRAPHING ACCELERATION

Acceleration forms a straight line on a speed vs time graph.

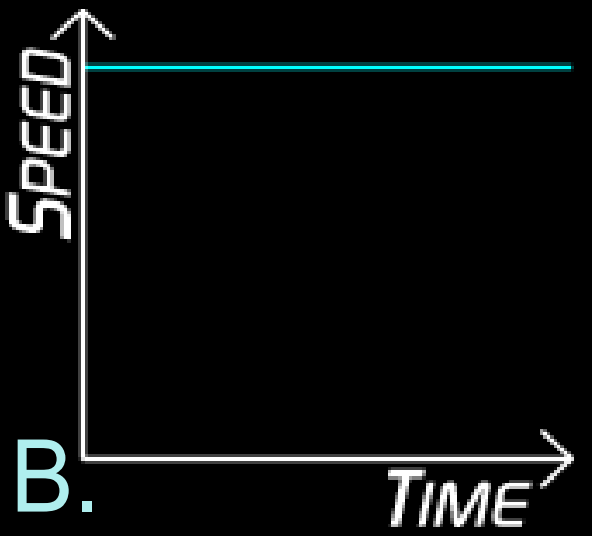


Acceleration forms a curve on a distance vs time graph



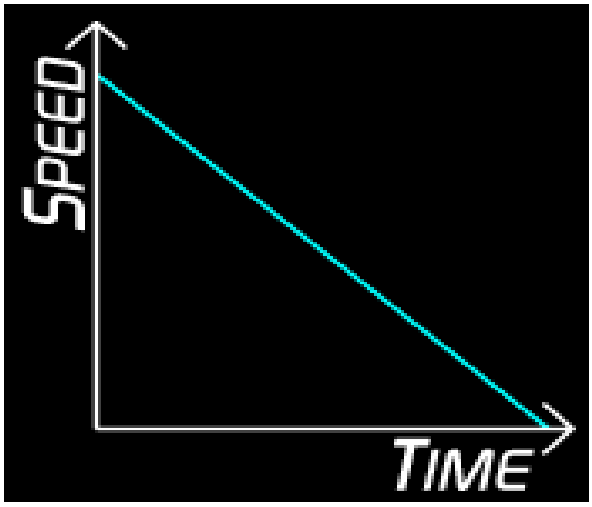


Graph A shows a constant acceleration and an increasing speed.

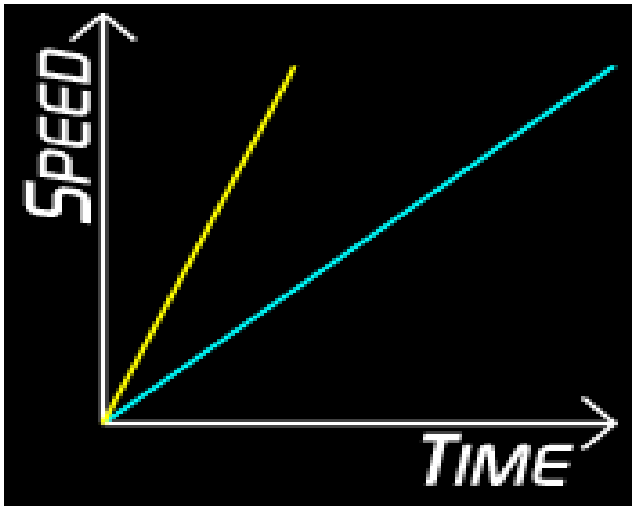


Graph B shows zero acceleration and a constant speed.

Describe the motion of the object in the graph below:

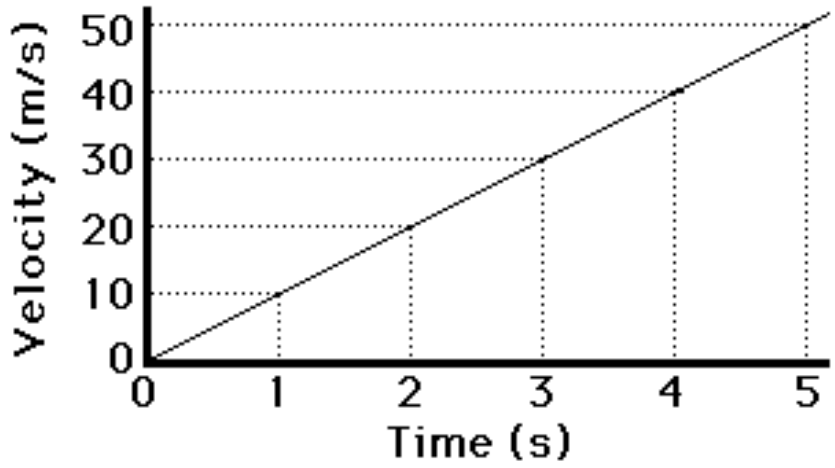


Which object has the greater acceleration? The line represented in yellow or blue?



Speed - Time Graphs

A speed-time graph can give you information about the acceleration of an object. You can find acceleration the same as finding speed from a d vs t graph (find the slope)



$$a = \frac{v_f - v_i}{t_2 - t_1}$$

$$\text{acceleration (a)} = \frac{\Delta v}{\Delta t} = \frac{v_f - v_i}{t_2 - t_1}$$

The graph below represents the speed of a marathon runner during part of his run.

1. How much time passed before the runner began running?

5 seconds

2. How many times did the runner stop accelerating?

twice

3. At what point (A,B,C) was the runner going the fastest?

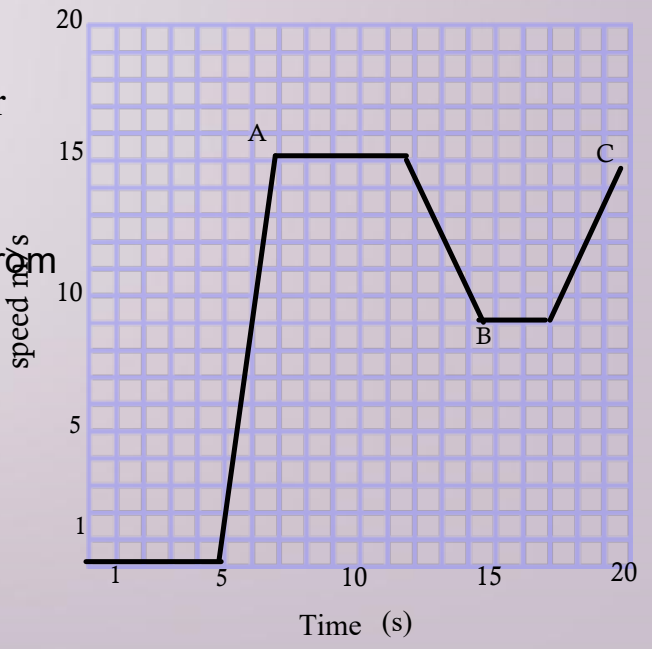
point A

4. What was the runner's acceleration from 5 seconds to 7 seconds?

$$a = \frac{v_f - v_i}{t} = \frac{15\text{m/s} - 0\text{m/s}}{7\text{s} - 5\text{s}} = \frac{15\text{m/s}}{2\text{s}} = 7.5\text{m/s}^2$$

5. How much time passed when the runner started to slow down?

12 sec



p. 393 #1-4a,5a,6ab,8,11a

Attachments

answers acceleration worksheet.notebook

Answers Extra Practice Acceleration WS.notebook