

### Physics Practice Problems Acceleration and Velocity

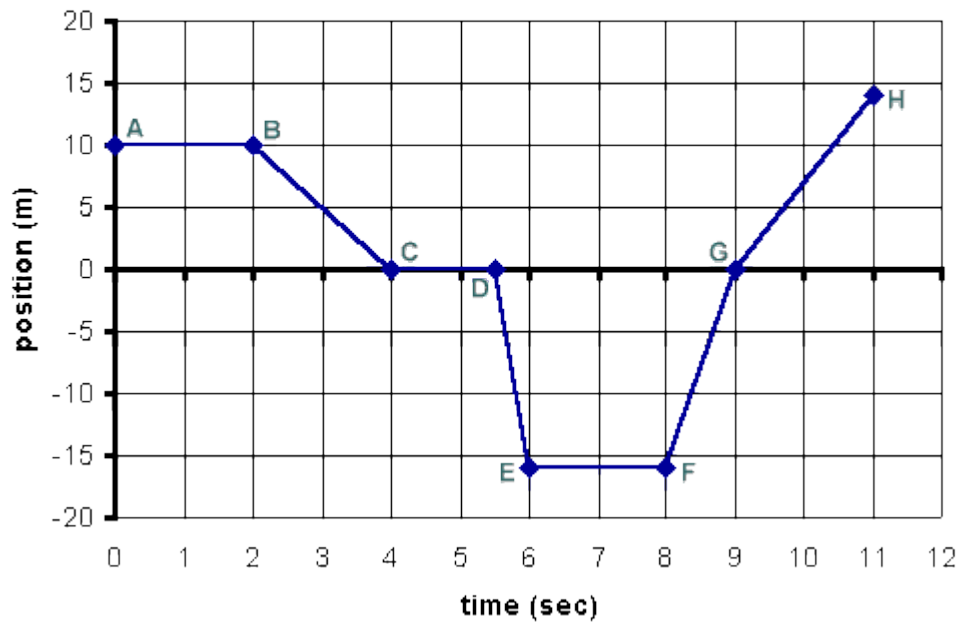
1. From rest, a car accelerated at  $8 \text{ m/s}^2$  for 10 seconds, what is the velocity of the car at the end of the 10 seconds?
2. With an initial velocity of  $20 \text{ km/h}$ , a car accelerated at  $8 \text{ m/s}^2$  for 10 seconds, what is the velocity of the car at the end of the 10 seconds?
3. A car accelerates uniformly from 0 to  $72 \text{ km/h}$  in 11.5 seconds, What is the acceleration of the car in  $\text{m/s}^2$ ?
4. An object is thrown straight down from the top of a building at a speed of  $20 \text{ m/s}$ . It hits the ground with a speed of  $40 \text{ m/s}$ , How long was the object in the air?
5. A train brakes from  $40 \text{ m/s}$  to a stop over a distance of 100 m.
  - a) What is the acceleration of the train?
  - b) How much time does it take the train to stop?
7. A bicyclist is coasting on a flat surface @  $4 \text{ m/s}$  for 13 s how far did the bicycle go?
8. A car travelling uniformly North to South at  $60 \text{ km/h}$  goes 3km how long did it take (in hours)?

9. A car travels uniformly for 2.34 hrs at 60 km/h West to East what is its displacement in (m)

10. A train travels 300 km in 2.5 hours what is its velocity in m/s

11.

Position vs Time



Using the above graph do the following:

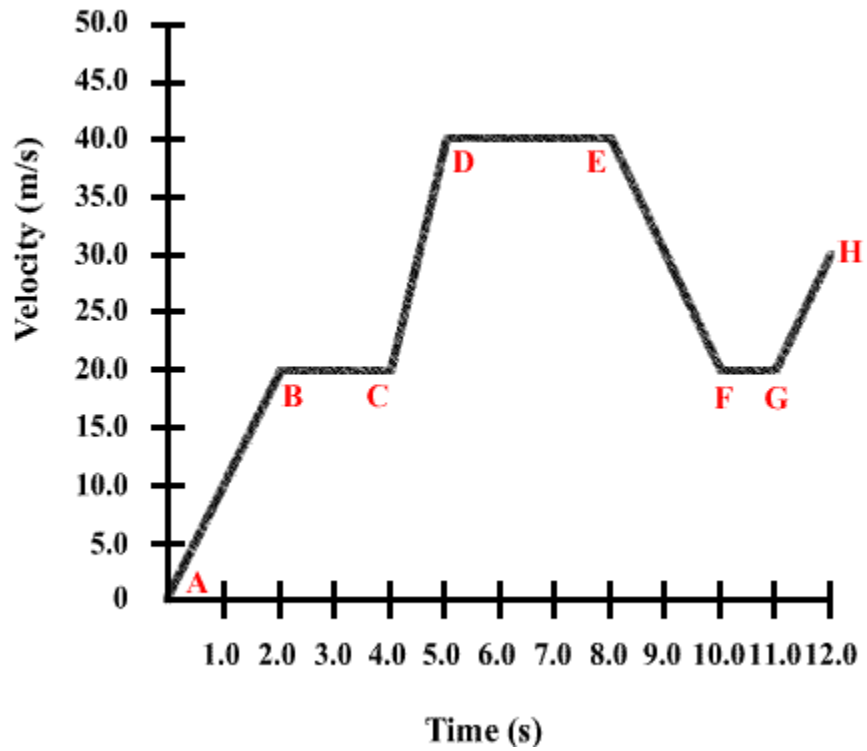
a) Describe what is occurring between E and F.

b) Describe what is occurring between F & G.

c) Describe what is occurring between C&D.

d) Describe what is occurring between B & C.

12.



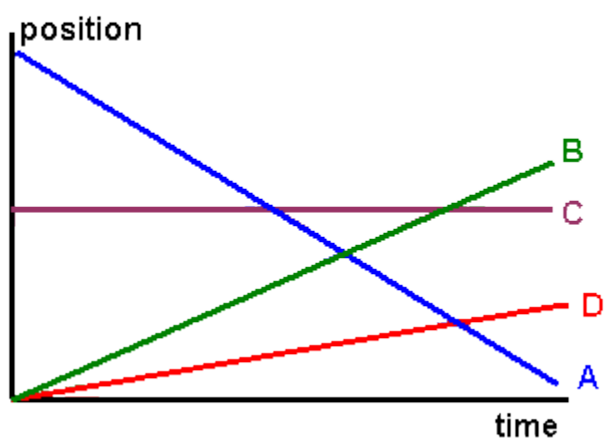
Using the above graph do the following:

a) Describe what is happening between B&C

b) Describe what is happening between E&F

c) Describe what is happening between A&B

13.



Describe what is happening for each line.

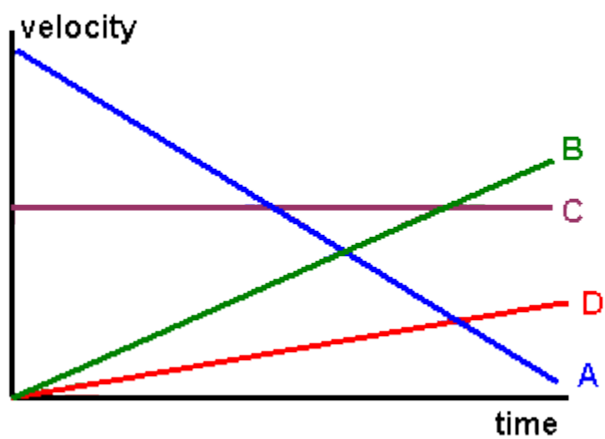
A

B

C

D

14



Describe what is happening with each line

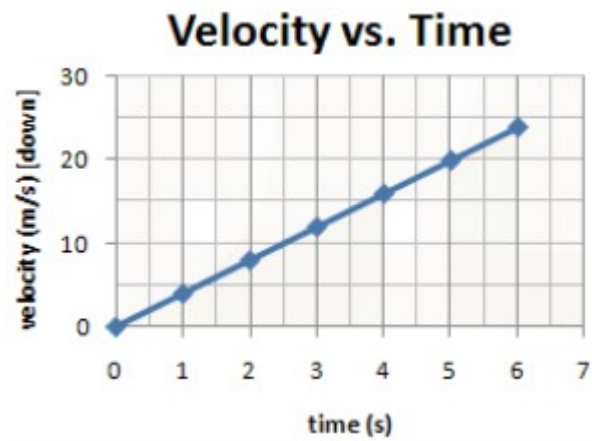
A

B

C

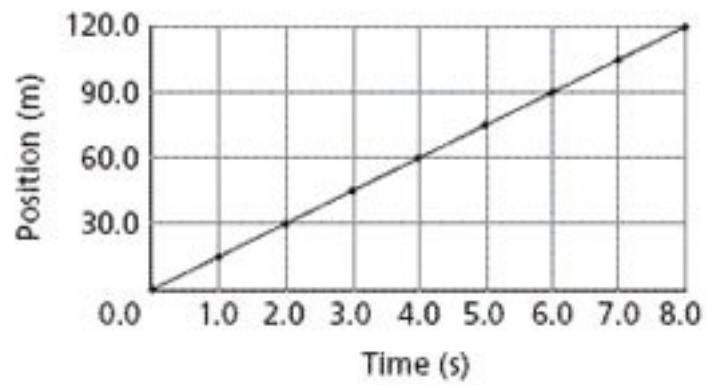
D

.15



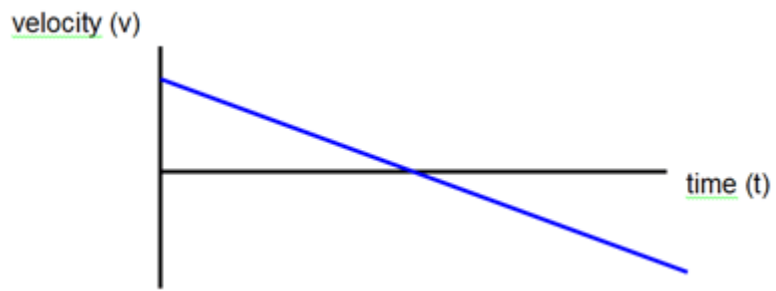
Calculate the acceleration of the graph

16.



Calculate the Average Velocity of the graph

17.



Explain the motion of the object that would give this graph.