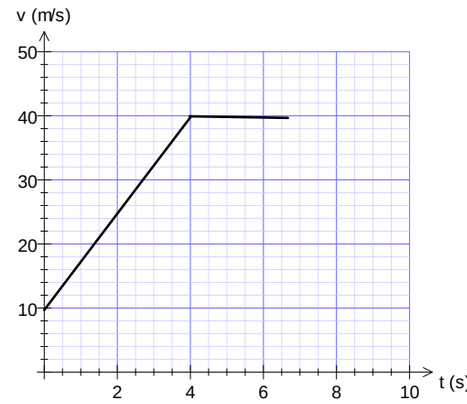
Physics 2204
Assignment 3
Graphical Analysis

Name:_____

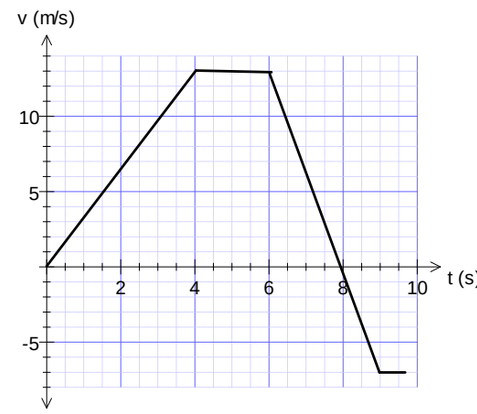
1. How far did the object travel during the first 5.0 s?
Show workings in the margin.

A) 200 m
B) 160 m
C) 140 m
D) 240 m

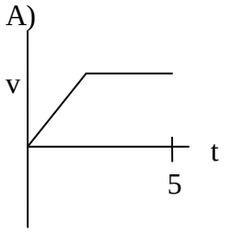


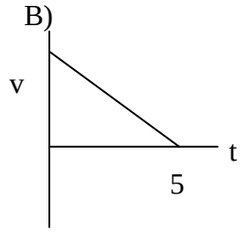
2. The graph below shows the motion of a bicycle during a period of 10 s. North [N] is positive and South [S] is negative. During the time interval 8 s to 9 s, which interval best describes the motion of the bike?

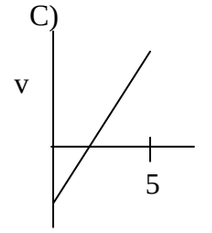
A) Moving north at a decreasing speed.
B) Moving north at an increasing speed.
C) Moving south at a decreasing speed.
D) Moving south at an increasing speed.

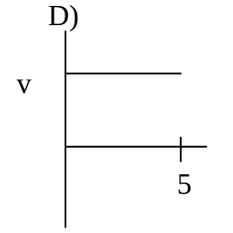


3. Which graph represents a car that is not moving at time 5 s?

A)


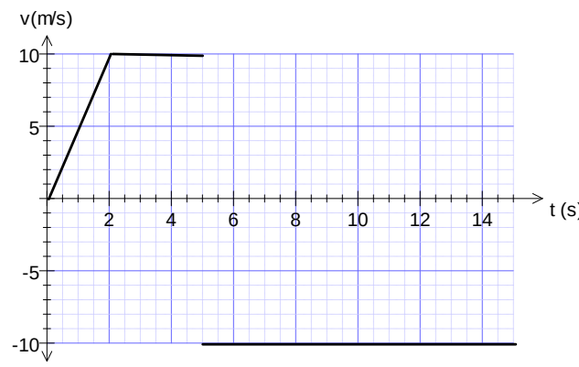
B)


C)


D)


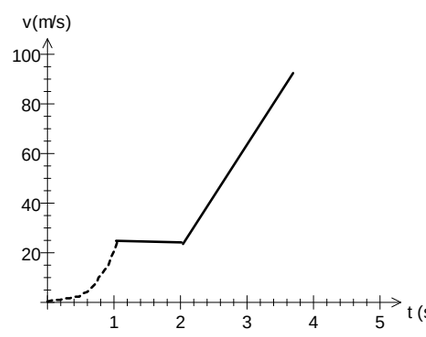
4. How far did the object travel in 15 s?
Show workings in the margin.

A) 15 m
B) - 30 m
C) - 45 m
D) - 60 m

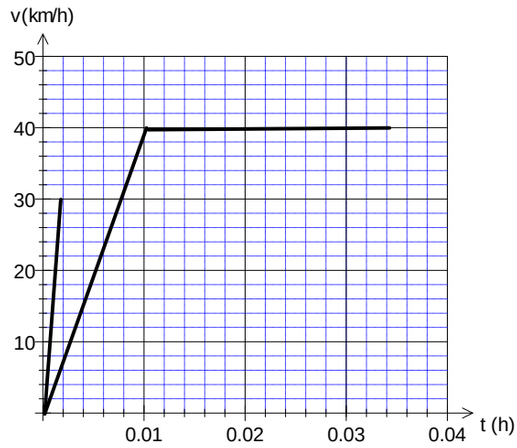


5. Which statement describes the motion represented on the graph?

A) The object has returned to its original starting point.
B) The object moves to the left and then to the right.
C) The object moves to the right only.
D) The object moves to the left only

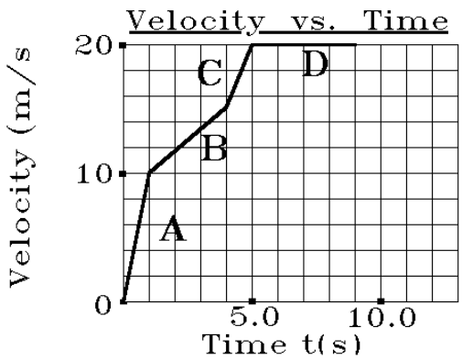


6. Two cars, side by side at the starting line, accelerate from rest at the same rate. Their velocity-time graphs are shown below. When will the cars have the same speed?



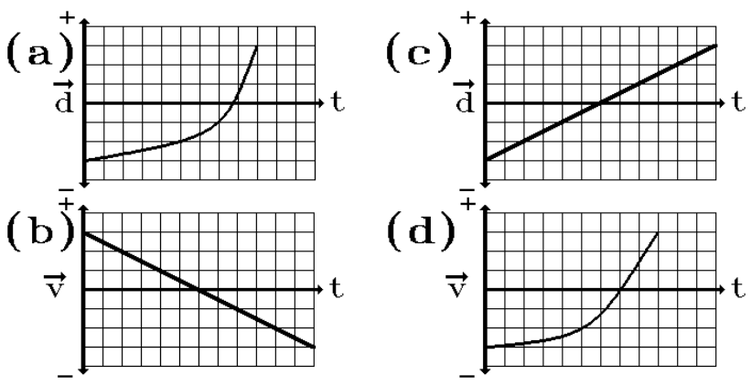
A) 0.004 h
B) 0.009 h
C) 0.012 h
D) 0.020 h

7. Using the graph at the right, determine the distance that the object traveled during segment B. **Show workings in the margin.**

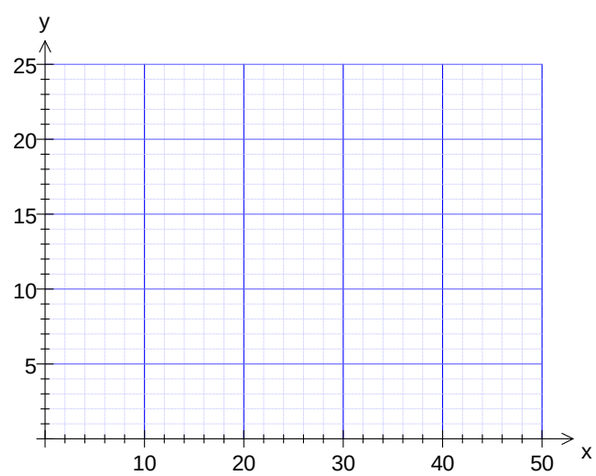


A) 7.50 m
B) 30.0 m
C) 37.5 m
D) 45.0 m

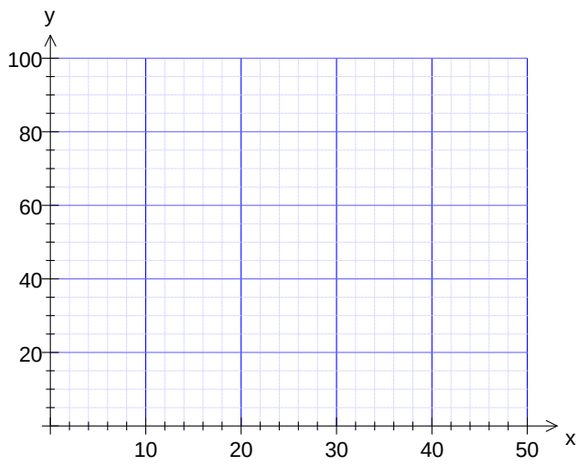
8. Which graph below depicts an object that changes its direction from right to left with a uniform acceleration?



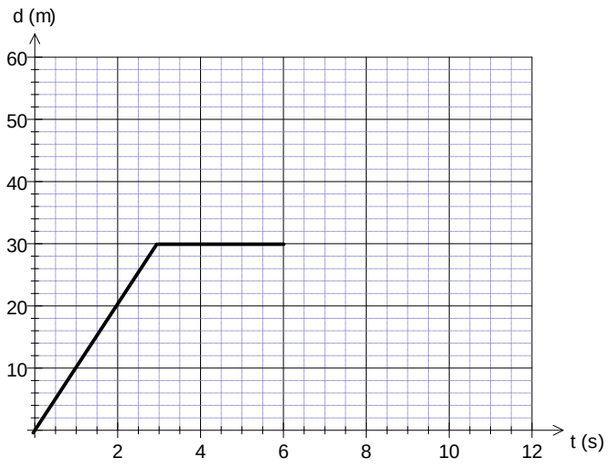
9. Draw a velocity-time graph for an object that accelerates at 3.0 m/s^2 for 5 seconds, then moves at a constant velocity for 10 seconds and finally comes to rest in 15 s.



10. Draw a position-time graph for a runner who moves at 4.0 m/s for 10.0 s, then at 2.0 m/s for 20 s and then - 8.0 m/s for 10.0 s.

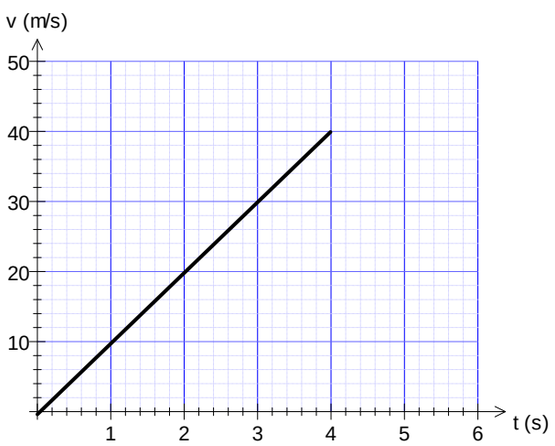


11. A) For the position-time graph below, fully describe the motion.



B) Calculate the velocity of the object from 0 – 3.0 s, 3.0 – 6.0 s, 6.0 –11.0 s.

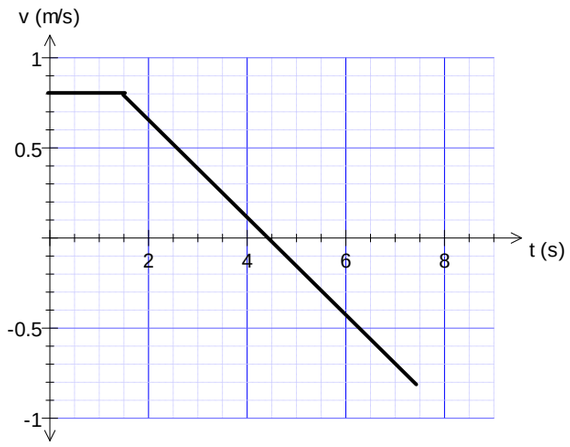
12. A) For the velocity-time graph below, calculate the total displacement of the object during the 5.0 s interval.



B) Find the acceleration of the object from 0 – 4.0 s.

C) Describe the motion of the object.

13. A ball rolls along the floor, up a sloping board, and then back down the board and across the floor again. The graph represents this motion.



A) At what time is the ball at its highest point? _____

B) What was the acceleration when the ball was

i) rolling up the board? _____

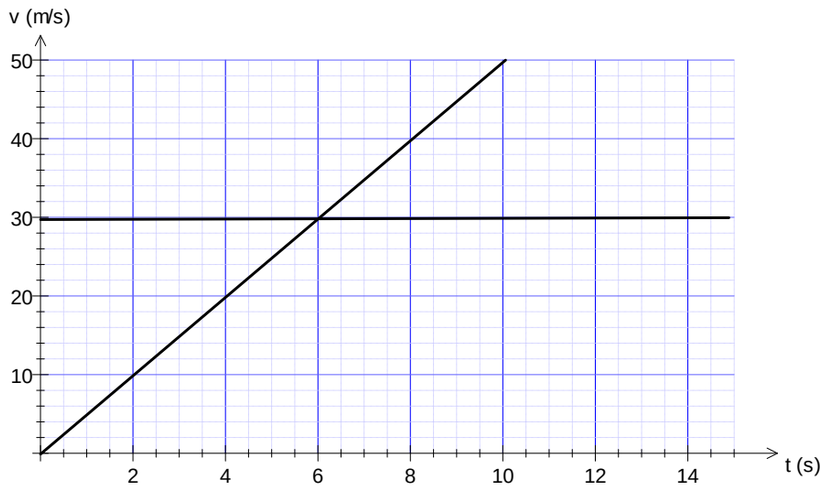
ii) rolling down the board? _____

iii) at rest at the top point? _____

C) How far up the board did the ball go? _____

D) What was the total displacement of the ball over the 9.0 s trip?_____

14. Car A is stopped at a traffic light. As the traffic light turns green, Car A starts to move and at just that instant Car B passes Car A going at a steady 30 m/s. The velocity - time curves for the motion of the two cars is shown below.



A) At what time is Car A traveling at the same velocity as Car B?_____

B) At that time, by how much is Car B ahead of Car A?

C) At the end of 10 s, which car is ahead and by how much?

D) At what time does car A catch up with Car B?

E) How far are the cars from the stop light when car A catches Car B?