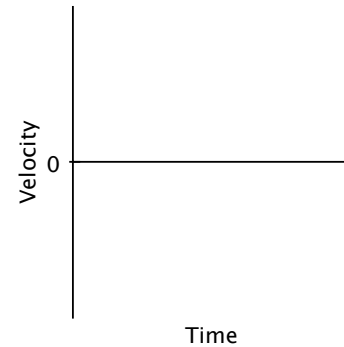


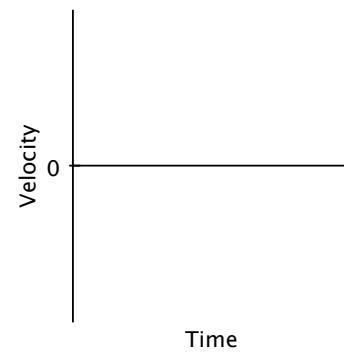
Worksheet 2-5 Velocity-Time Graphs

Sketch velocity vs. time graphs corresponding to the following descriptions of the motion of an object.

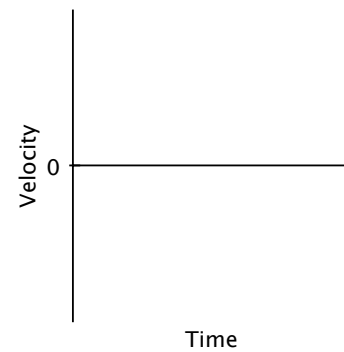
1. The object is moving away from the origin at a constant (steady) speed.



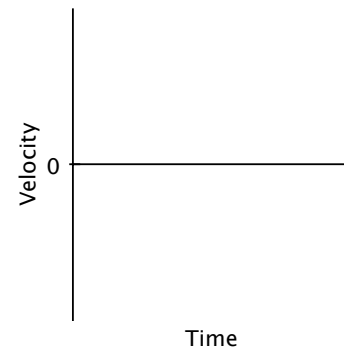
2. The object is standing still.



3. The object moves toward the origin at a steady speed for 10s, then stands still for 10 s.

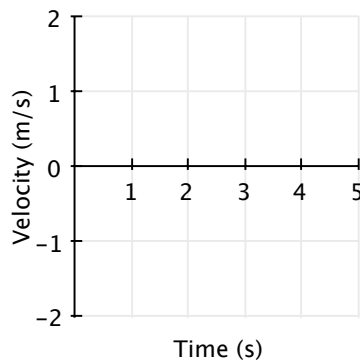
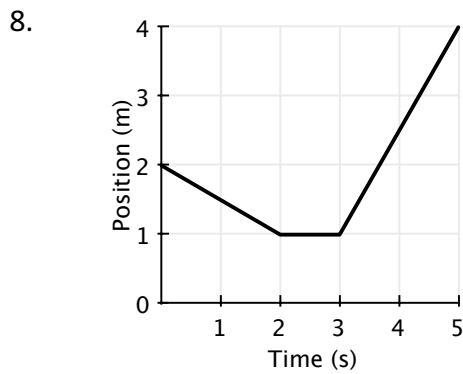
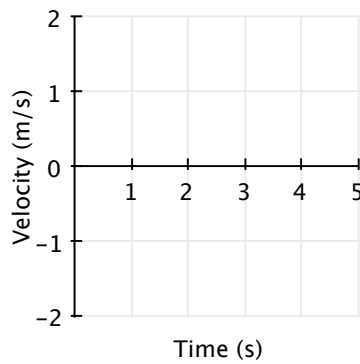
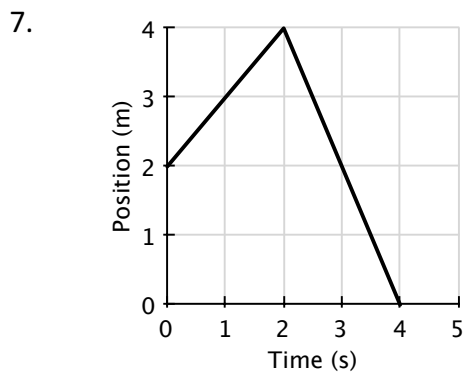
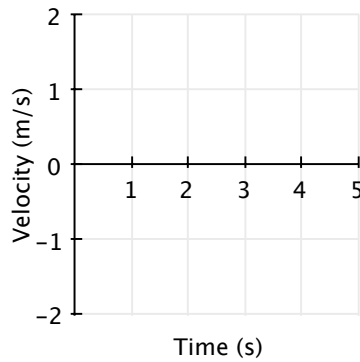
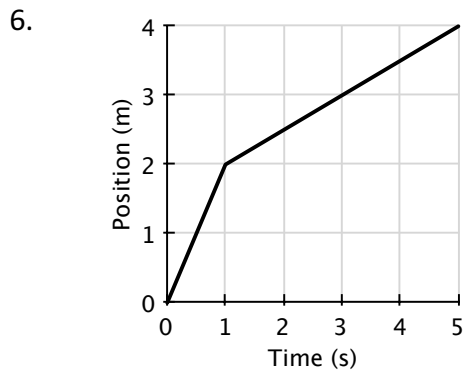
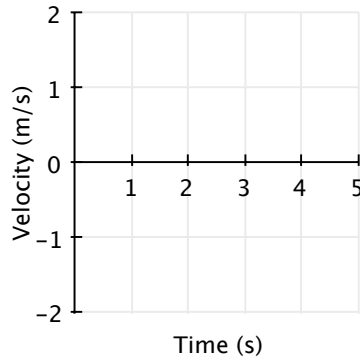
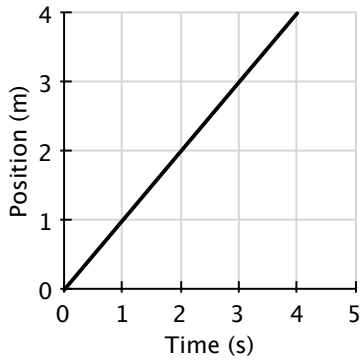


4. The object moves away from the origin at a steady speed for 10s, reverses direction and moves back toward the origin at the same speed.



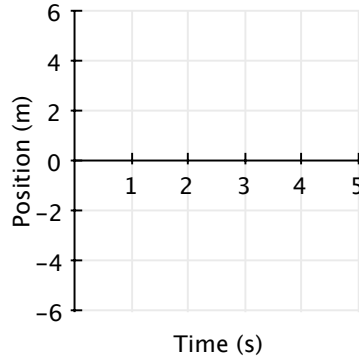
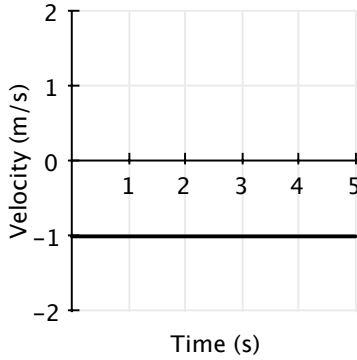
Draw the velocity vs. time graph for an object whose motion produced the position vs. time graphs shown below. For each also give a written description of the motion.

5. position-time graph velocity-time graph written description

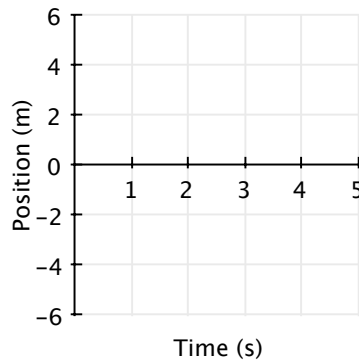
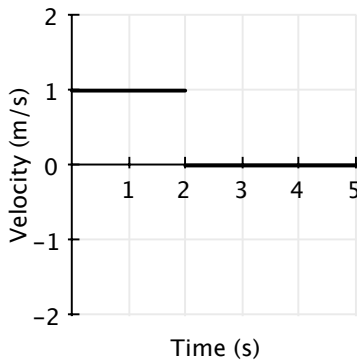


Draw a position vs. time graph for an object whose motion produced the velocity vs. time graphs shown below. For each also give a written description of the motion. In each case assume a starting position of $x = 0$.

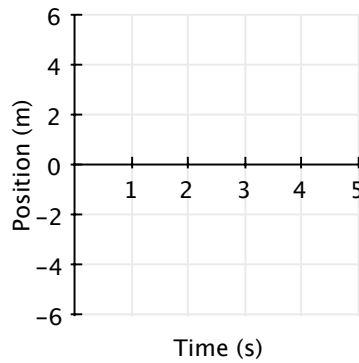
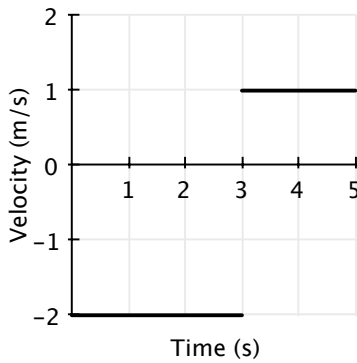
9. velocity-time graph position-time graph written description



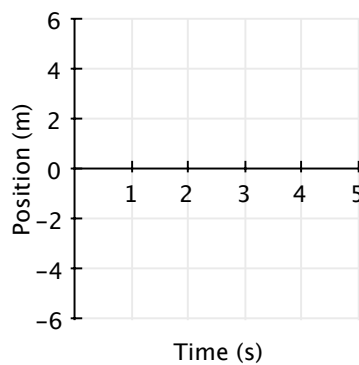
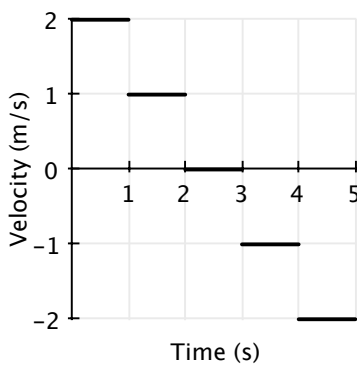
10.



11.



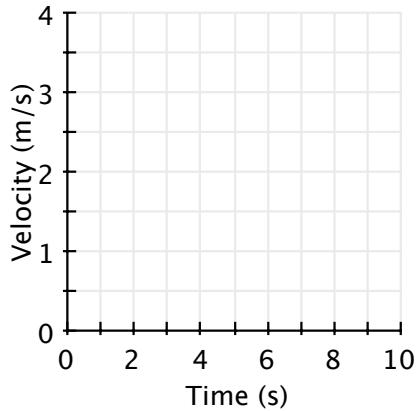
12.



13. While taking data you measure the speed of a laboratory cart. The data is shown below.

Time (s)	Speed (m/s)
0.0	0
2.0	2.0
4.0	2.0
6.0	4.0
8.0	3.0
10.0	3.0

- a) Make a graph of velocity vs. time.
- b) Determine the distance the cart traveled from $t = 2.0$ to $t = 4.0$ s.

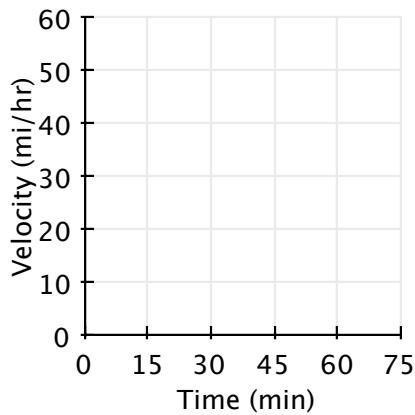


- c) Determine the distance the cart traveled from $t = 0$ to $t = 10.0$ s.

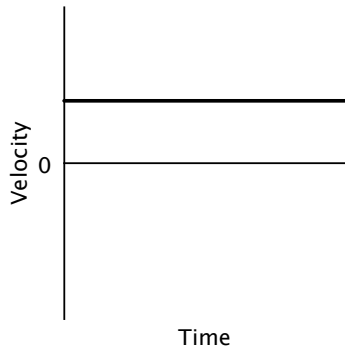
14. As Chris was driving home he noted his speed at various times and the data is shown below.

Time (min)	Speed (mi/hr)
0.0	30.0
15.0	40.0
30.0	50.0
45.0	50.0
60.0	60.0
75.0	40.0

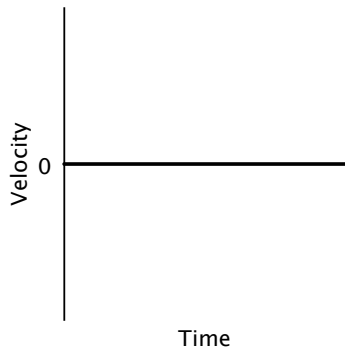
- a) Make a graph of velocity vs. time.
- b) Determine the distance Joe traveled during the 75 min. trip.



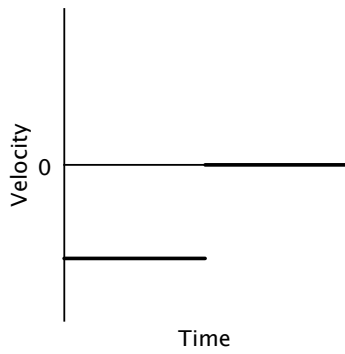
1.



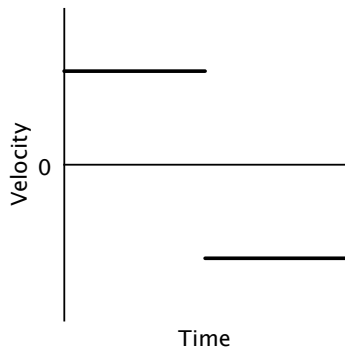
2.



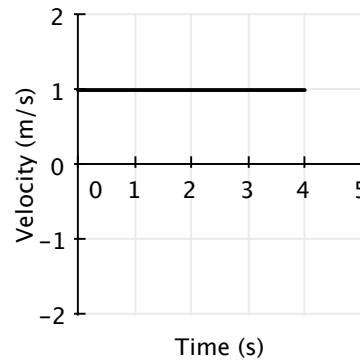
3.



4.

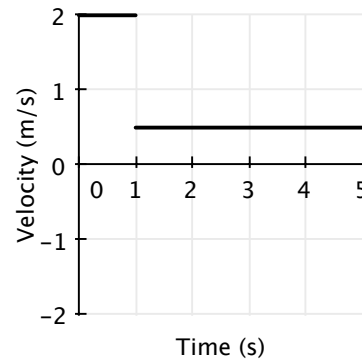


5.



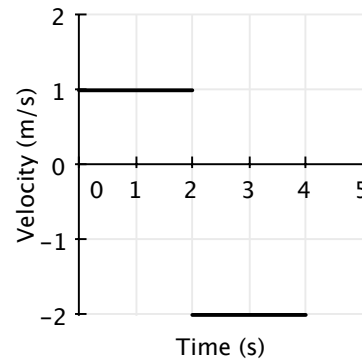
The object moves at a constant velocity of 1 m/s.

6.



The object moves at 2 m/s for 1 s then at 0.5 m/s for the next 4 s.

7.

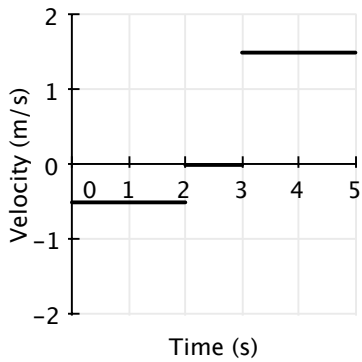


The object moves in the positive direction at 1 m/s for 2 s and then in the negative direction at 2 m/s for the next 2 s.

Physics P

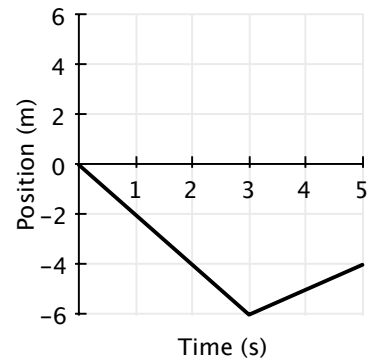
Worksheet 2-5: Velocity-Time Graphs

8.



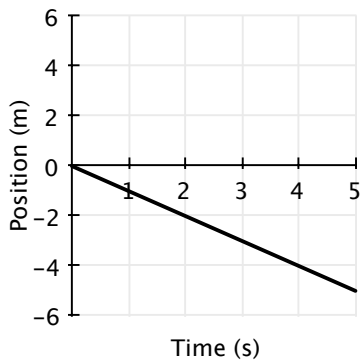
The object moves toward at 0.5 m/s for 2 s, is at rest for the next 1 s, then moves away at 1.5 m/s for the last 2 s.

11.



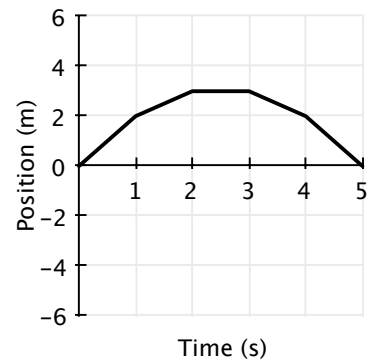
The object moves in the negative direction at 2 m/s for 3 s then in the positive direction at 1 m/s for 2 s.

9.



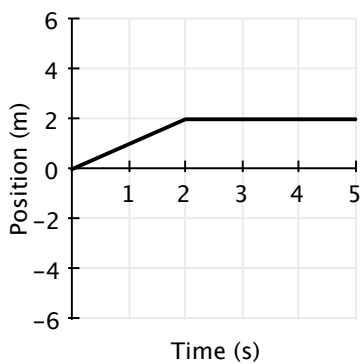
The object moves in the negative direction at 1 m/s for 5 s.

12.



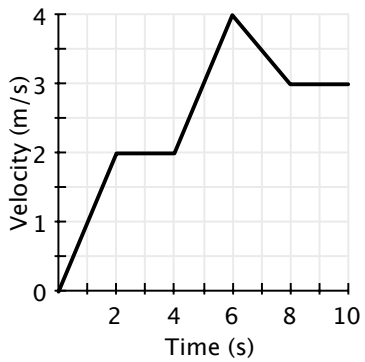
The object move away at 2 m/s for 1 s, then slows to 1 m/s for 1 s, then remains at rest for 1 s, moves toward at 1 m/s for 1 s then continues at 2 m/s for then last second.

10.



The object moves away at 1 m/s for 2 s and then stops.

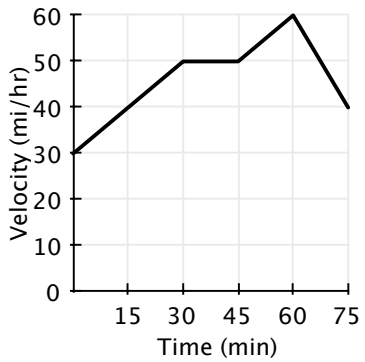
13a)



13b) The area under the graph from $t = 2$ s to $t = 4$ s is $(2 \text{ s})(2 \text{ m/s}) = 4 \text{ m}$.

13c) The area under the graph from $t = 0$ s to $t = 10$ s is $= 25 \text{ m}$.

14a)



14b) The area under the graph is 58.75 mi.