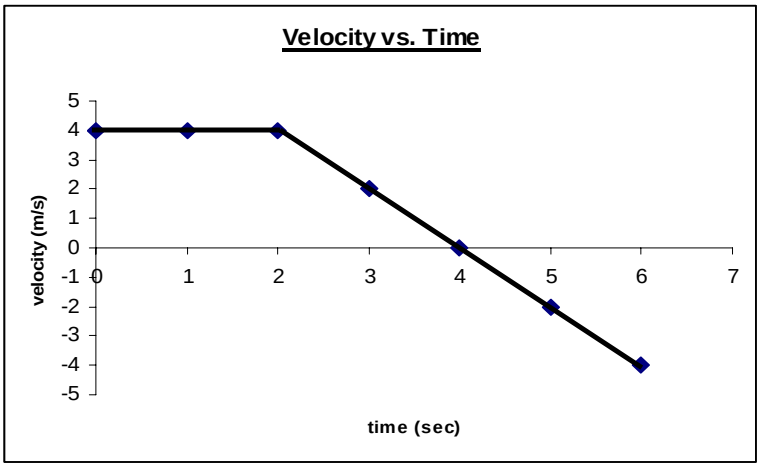
1. Given the following graph:

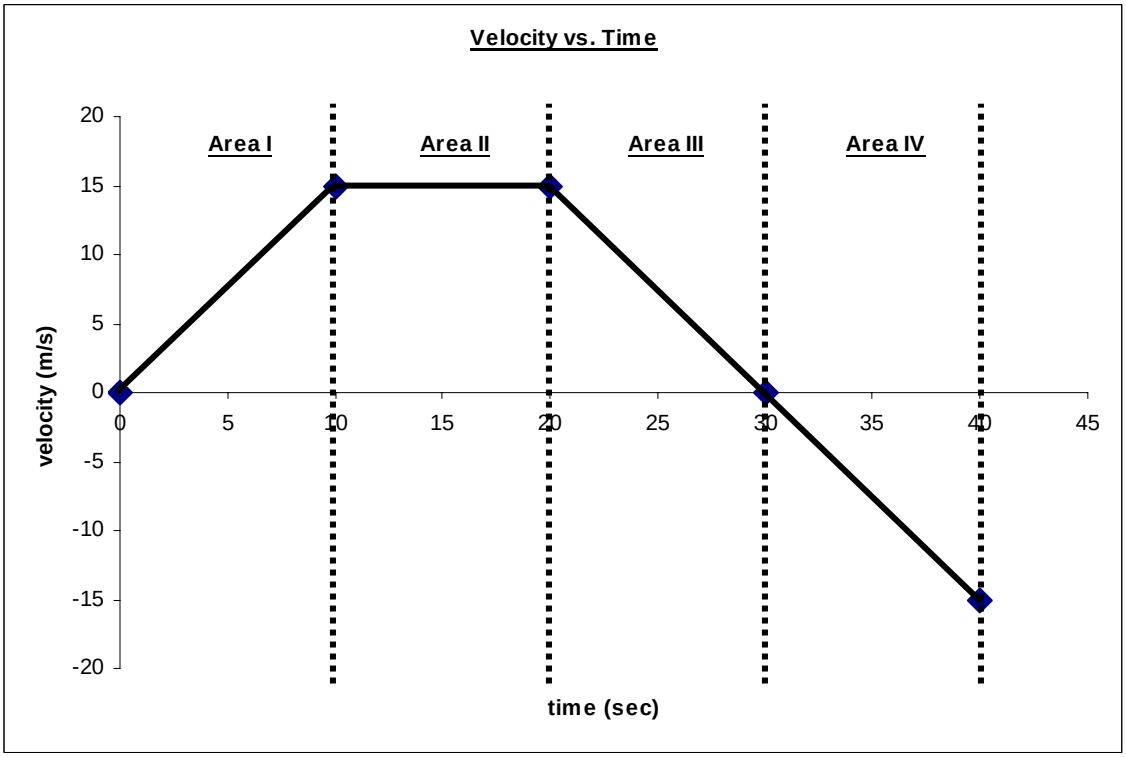
a) **Describe the motion** of each 2 second time interval, stating whether the velocity if changing or constant, is the object accelerating, is the object moving forward or backward, etc.

b) Calculate the **acceleration** of the object at 1.5 seconds.

c) Calculate the average **acceleration** of the object between 2 and 6 seconds.



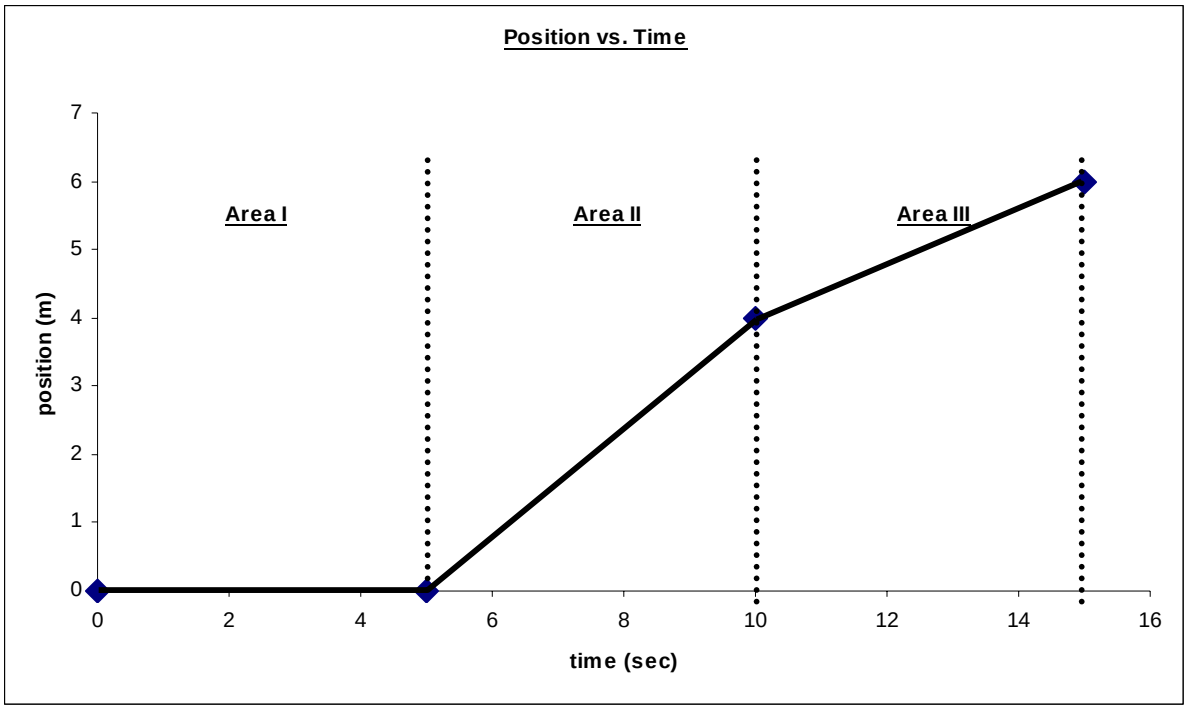
2. Given the graph below, determine the **displacement** of the object at t = 40 seconds, using **area under the curve** methods.



3. **a)** **Describe the motion** of the object during each of the marked time intervals.

b) Calculate the **average velocity** of the object between 5 and 10 seconds, and again between 10 and 15 seconds.

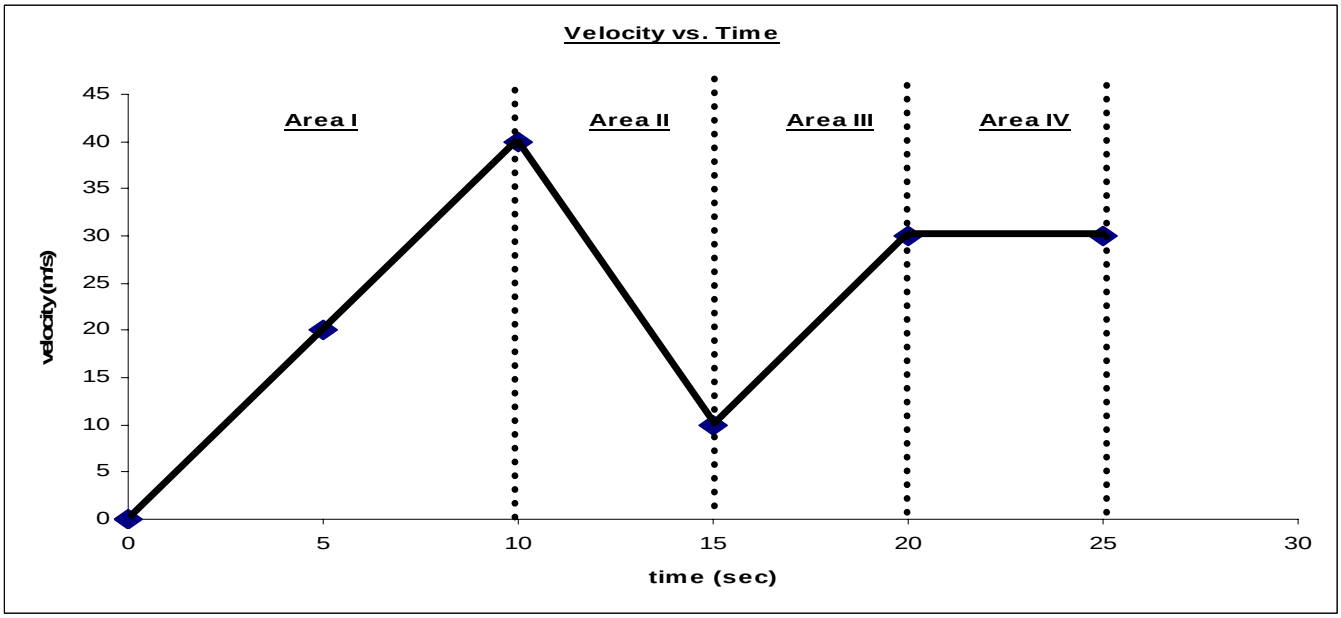
c) Calculate the **average acceleration** of the object during the 5 to 15 second time interval.



4. From the **v-t** graph below:

a) **Describe the motion** of the object in each of the marked time intervals.

b) Calculate the total **displacement** of the object at t = 25 seconds using **area under the curve** methods.



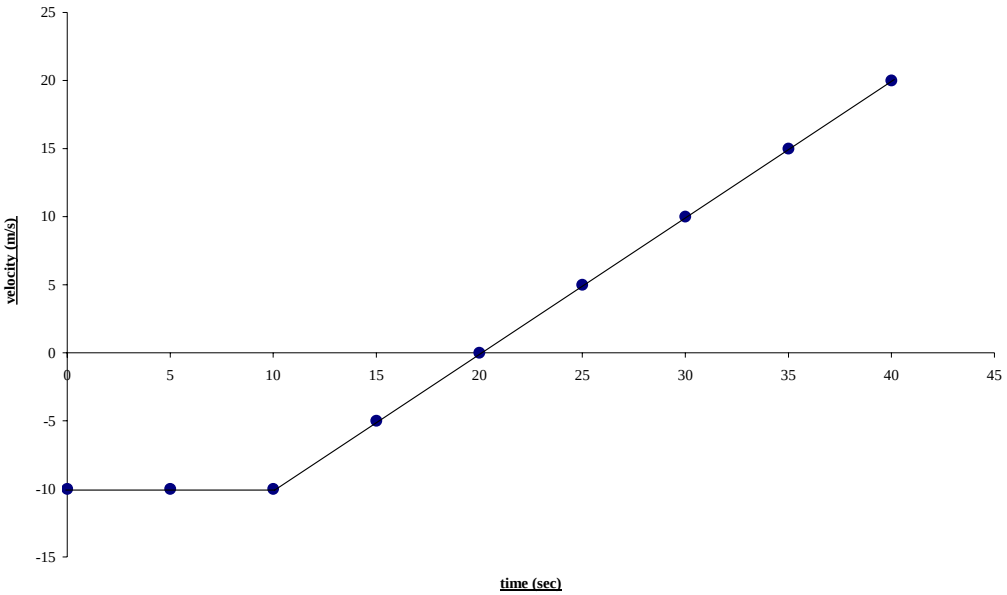
5. From the **v–t** graph below:

a) Describe the motion of the dirt bike in each of the marked time intervals.

b) Calculate the total **displacement** of the object at t = 40 seconds using **area under the curve** methods.

c) Construct the a–t graph that corresponds to this v-t graph.

Velocity vs. Time for a dirt bike



6. From the **x–t** graph below:

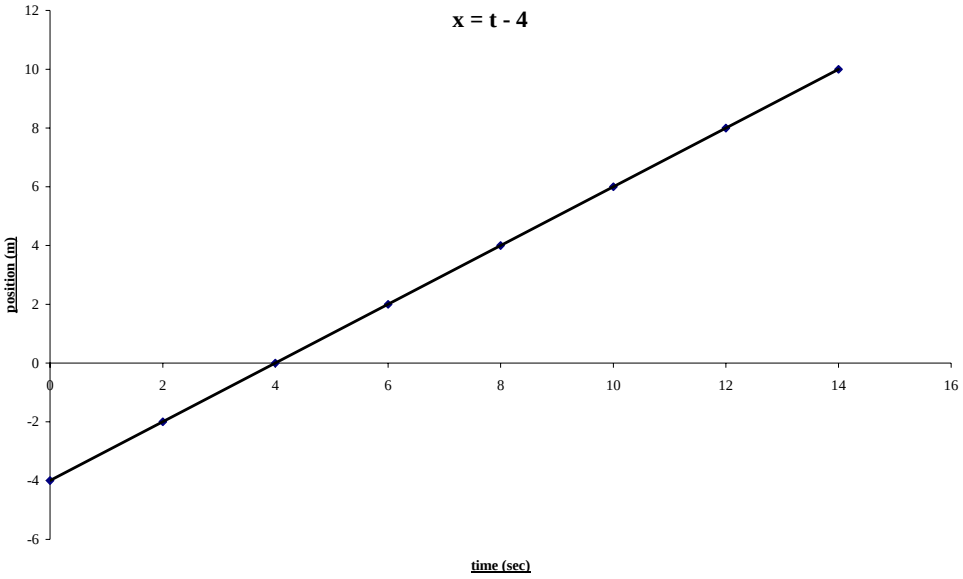
a) Describe the motion of the roller blader in each of the marked time intervals.

b) Calculate the total **displacement** of the object at t = 14 seconds.

c) Construct the v–t graph that corresponds to this x–t graph.

d) Write the equation of each line.

Position vs. Time of a roller blader



7. From the **x–t** graph below:

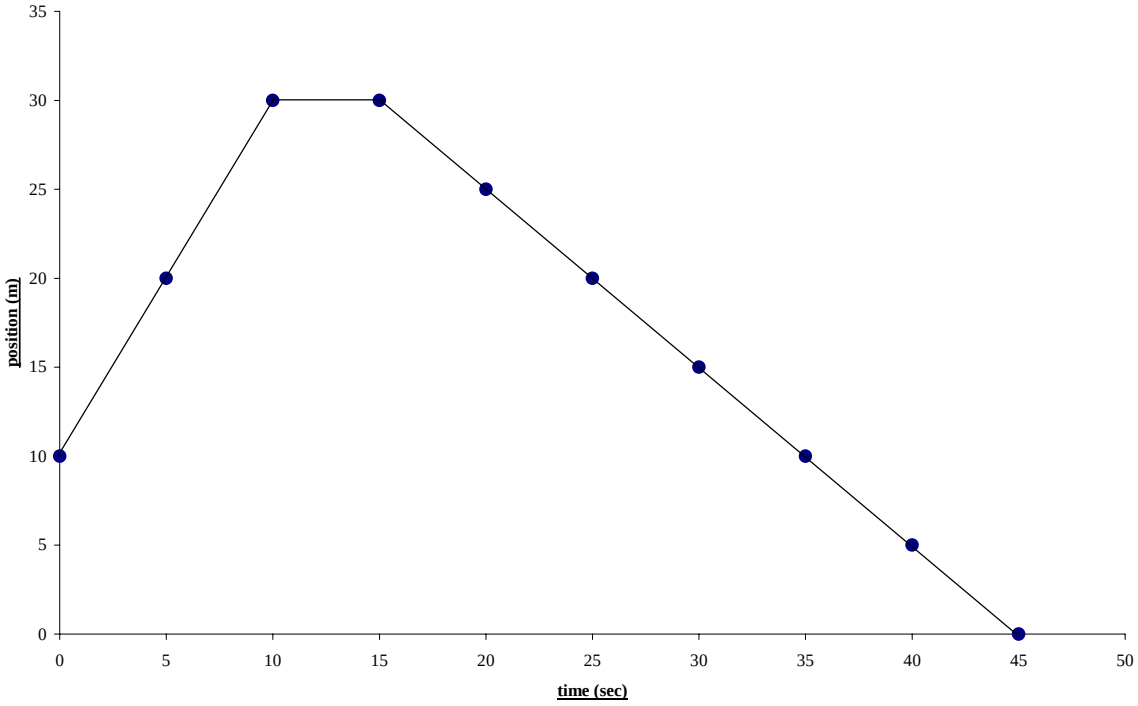
a) Describe the motion of the bicycle in each of the marked time intervals.

b) Calculate the total **displacement** of the object at t = 14 seconds.

c) Construct the v–t graph that corresponds to this x–t graph.

d) Write the equation of each line.

Position vs. Time of a bicycle



For Graph 1:

1. What is the position of the object at t = 15 seconds.
2. What is the instantaneous velocity at t = 6s? t = 14s?
3. What is the instantaneous acceleration at t = 14s?
4. What is the average velocity between t = 12s to t = 17s?
5. Graph a **v vs. t** graph for this object.

For Graph 2:

1. What is the average velocity between t = 7s to t = 16s?
2. What is the average acceleration between t = 18s to t = 20 s?
3. List all points that the *velocity* of this object is zero.
4. What is the instantaneous velocity at t = 12s?
5. Describe the velocity of this object throughout the time period.
6. What is the instantaneous velocity at t = 15s?
7. Graph a **v vs. t** graph for this object.

For Graph 3:

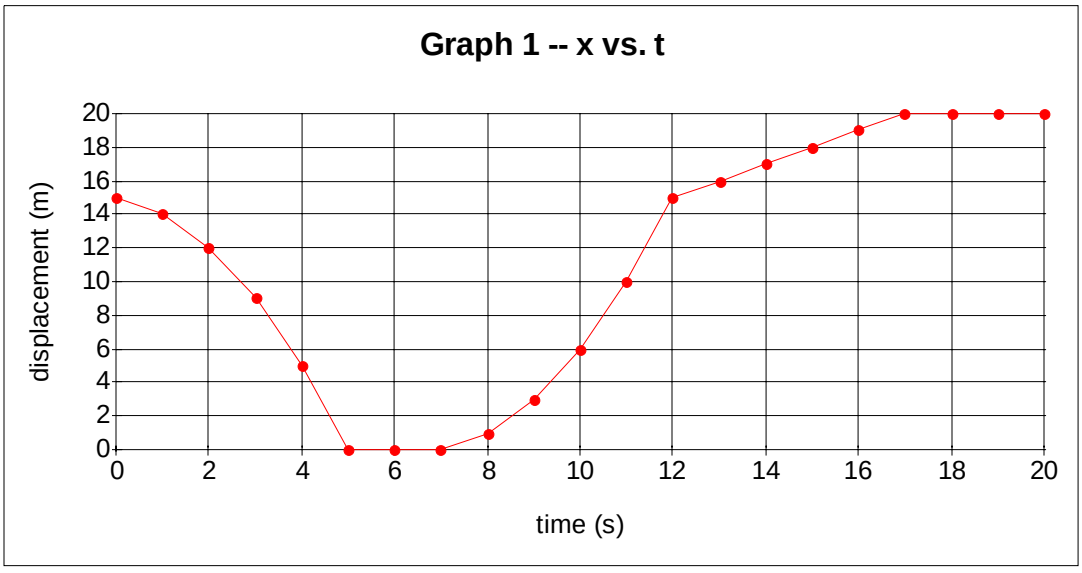
1. What is the instantaneous velocity of the object at t = 7 s?
2. What is the average acceleration between t = 6s to t = 10s?
3. Graph an **a vs. t** graph for this object.
4. If an object is at position x = 15 at t = 17, what position is it at t = 20?

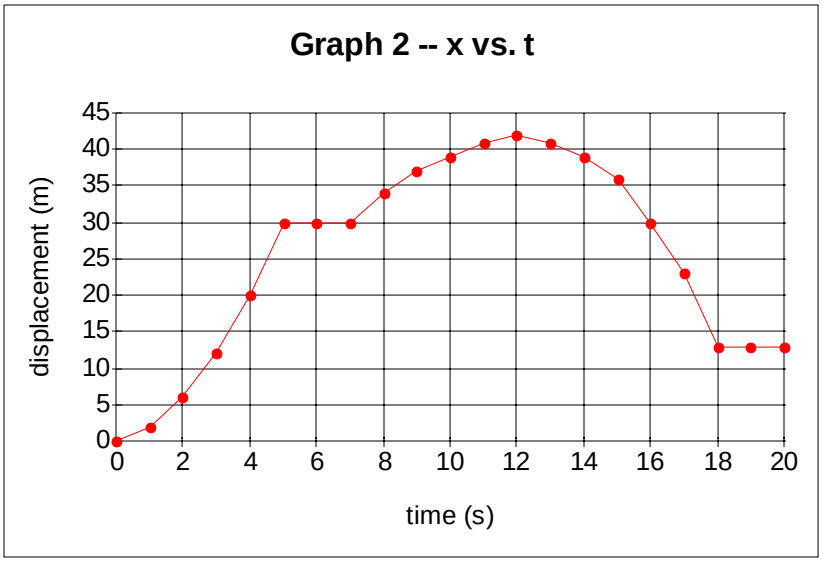
For Graph 4:

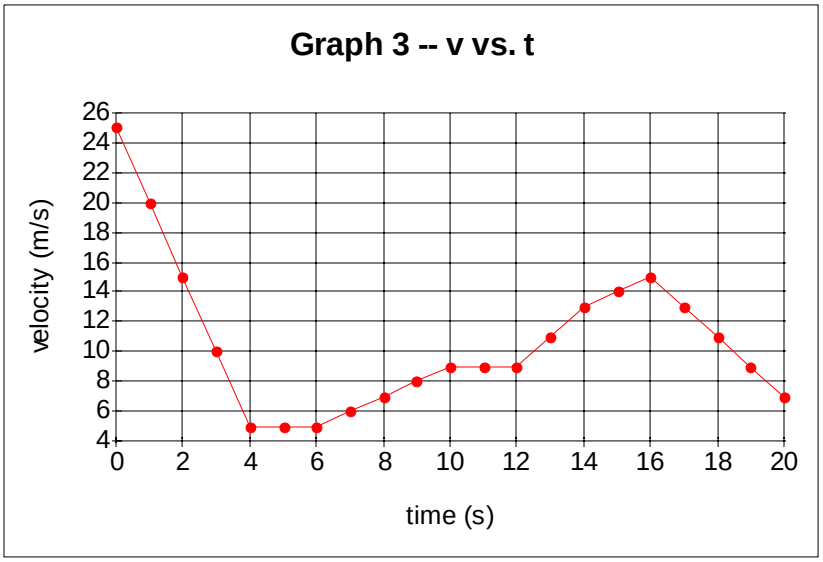
1. List all points that the *velocity* of this object is decreasing positively.
2. List all points that the *velocity* of this object is constant. (+,-, or zero)
3. If an object has a velocity of 10 m/s at t = 9, what is its velocity at t = 12?

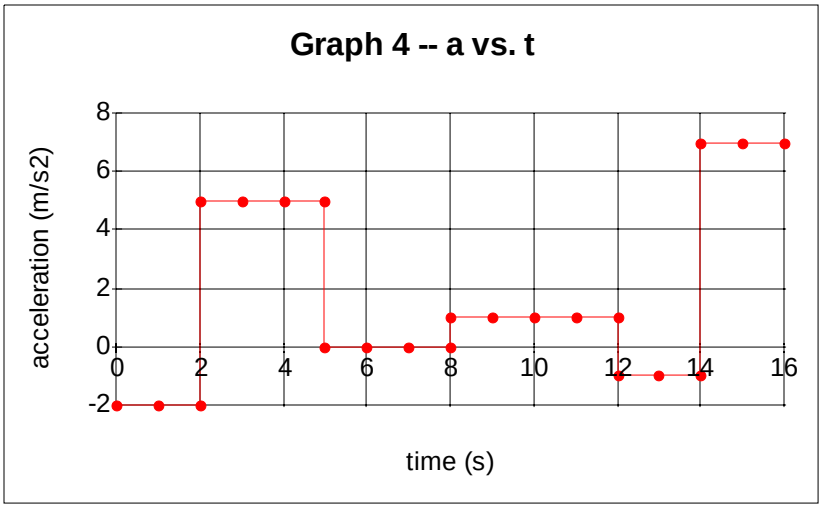
For Graph 5:

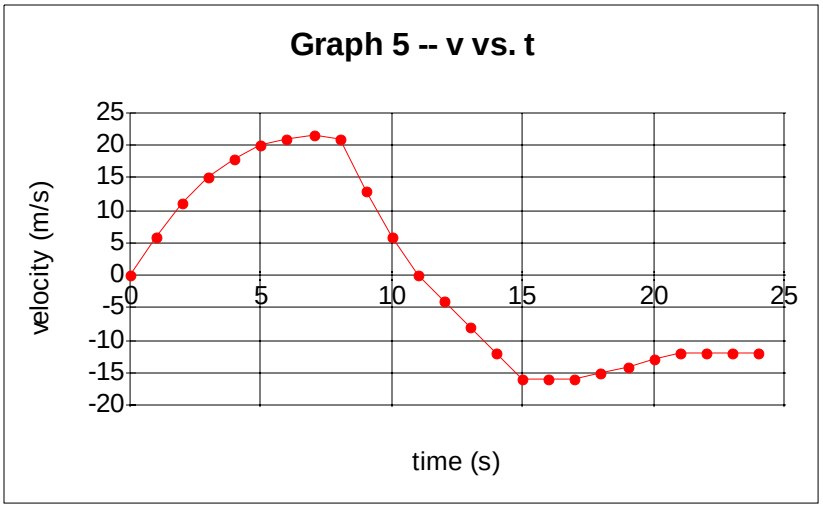
1. What is the instantaneous acceleration at t = 13s?
2. What is the instantaneous acceleration at t = 3s?
3. List all points that the *acceleration* of this object is 0.
4. What is the average acceleration over the entire period of this graph?

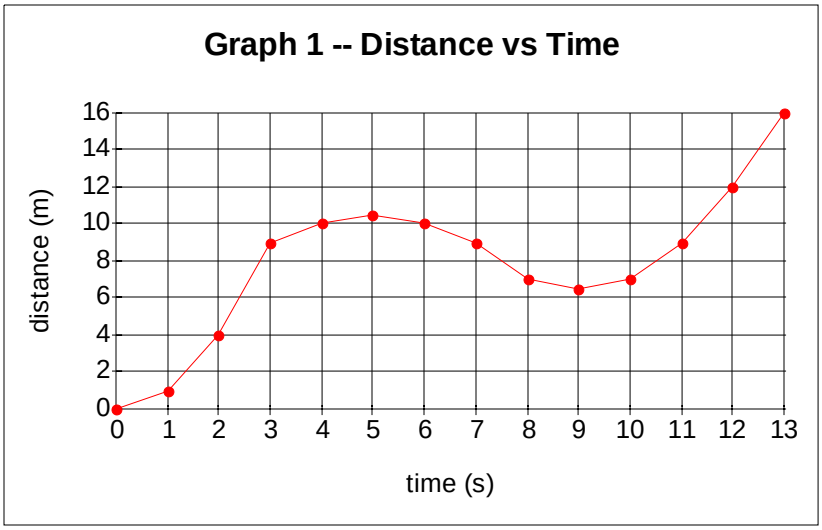


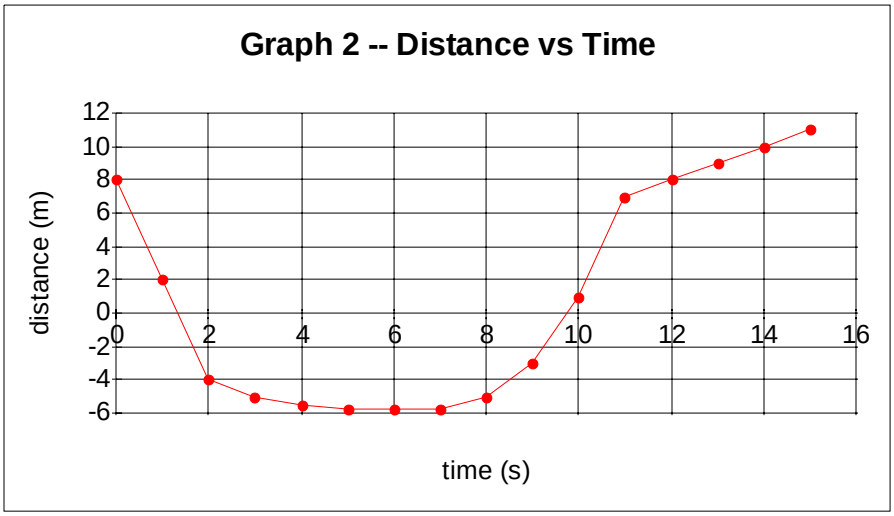

Graph 2 -- x vs. t
displacement (m)
0
5
10
15
20
25
30
35
40
45
0
2
4
6
8
10
12
14
16
18
20
time (s)

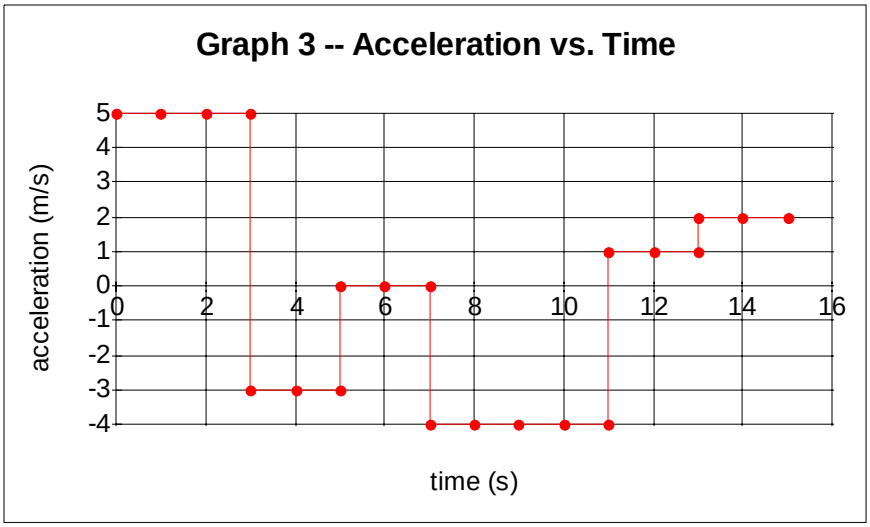

Graph 3 -- v vs. t
velocity (m/s)
4
6
8
10
12
14
16
18
20
22
24
26
0
2
4
6
8
10
12
14
16
18
20
time (s)


Graph 4 -- a vs. t
acceleration (m/s2)
8
6
4
2
0
-2
0
2
4
6
8
10
12
14
16
time (s)


Graph 5 -- v vs. t
velocity (m/s)
25
20
15
10
5
0
-5
-10
-15
-20
0
5
10
15
20
25
time (s)


Graph 1 -- Distance vs Time
distance (m)
time (s)
0
2
4
6
8
10
12
14
16
0
1
2
3
4
5
6
7
8
9
10
11
12
13


Graph 2 -- Distance vs Time
distance (m)
time (s)
12
10
8
6
4
2
0
-2
-4
-6
0
2
4
6
8
10
12
14
16


Graph 3 -- Acceleration vs. Time
acceleration (m/s)
time (s)
5
4
3
2
1
0
-1
-2
-3
-4
0
2
4
6
8
10
12
14
16

Honors

Physics Motion Review Sheet

Name:_____

For Graph 1:

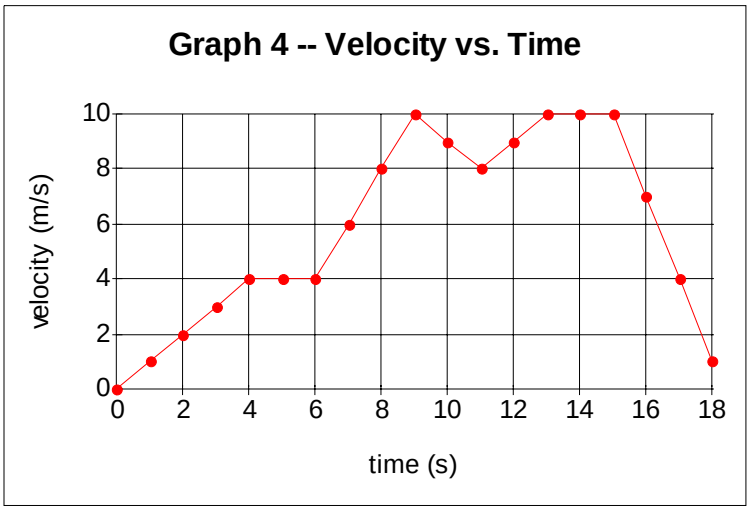
6. What is the position of the object at t = 3 seconds.
7. What is the instantaneous velocity at t = 5 s? t = 9s?
8. What is the instantaneous acceleration at t = 9s?
9. What is the average velocity between t = 3 to t = 7s?
10. Describe the velocity of this object throughout the whole time.
11. Graph a **v vs. t** graph.

For Graph 2:

8. What is the average velocity between t = 11 to t = 15s?
9. What is the average acceleration between t = 0 to t = 2s?
10. What is the instantaneous velocity at t = 9s? t = 11s?
11. What is the average velocity between t = 0 to t = 2s?
12. List all points on this graph where the velocity is zero.

For Graph 3:

4. Graph a **v vs. t** graph.
5. List all points that the *velocity* of this object is decreasing negatively.
6. List all points that the *velocity* of this object is constant. (+,-, or zero)
7. If an object has a velocity of 10 m/s at t = 8, what is its velocity at t = 11?

For Graph 4:

5. What is the instantaneous velocity of the object at t = 7 s?
6. What is the average acceleration between t = 0 to t = 4s?
7. Graph an **a vs. t** graph.
8. If an object is at position x = 3.5 at t = 4s, what position is it at t = 6s?
9. What is the instantaneous acceleration at t = 5s? t = 8s?