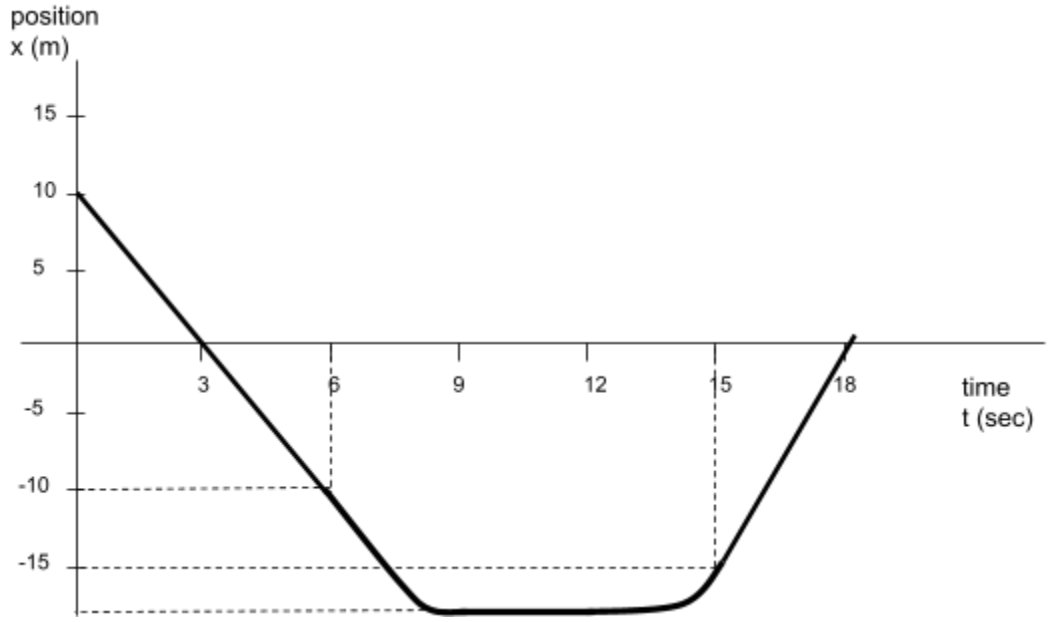
1. The graph below gives the position vs. time graph for a 0.329kg otter as it runs horizontally.



a. Place a small checkmark ✓ within each empty box if the instant in time or time interval satisfies the given condition. Leave the box blank if the condition is not satisfied. Ignore a box if it is greyed out.

	speeding up	slowing down	constant speed	velocity is +	velocity is -	velocity is 0	acc is +	acc is -	acc is 0
0sec									
1-2 sec									
3 sec									
5-6 sec									
8-9 sec									
10-12 sec									
14-15 sec									
16-18 sec									

b. What was the average velocity between t=0 sec and t=15 sec?

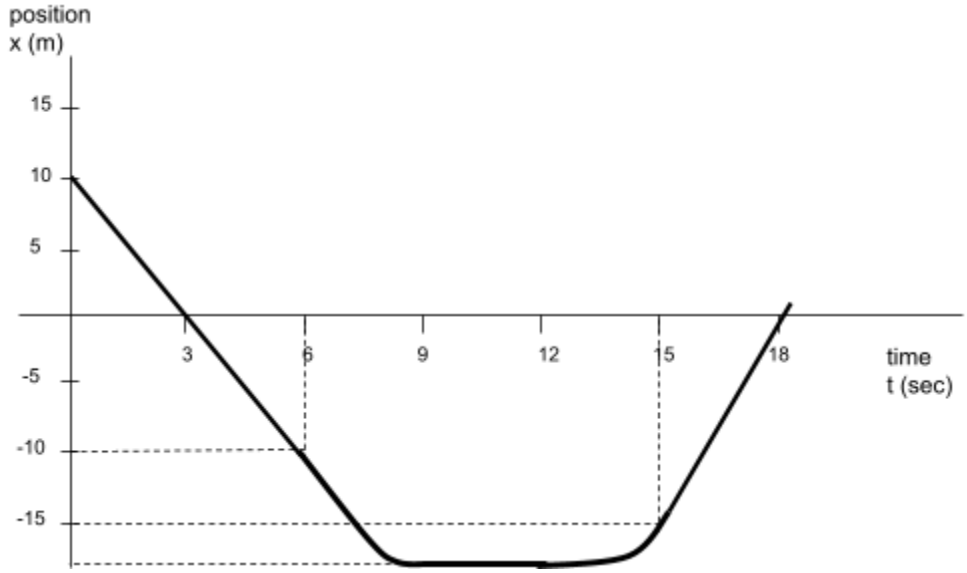
c. What was the instantaneous velocity at t=7 sec?

d. What was the instantaneous speed at t=0 sec?

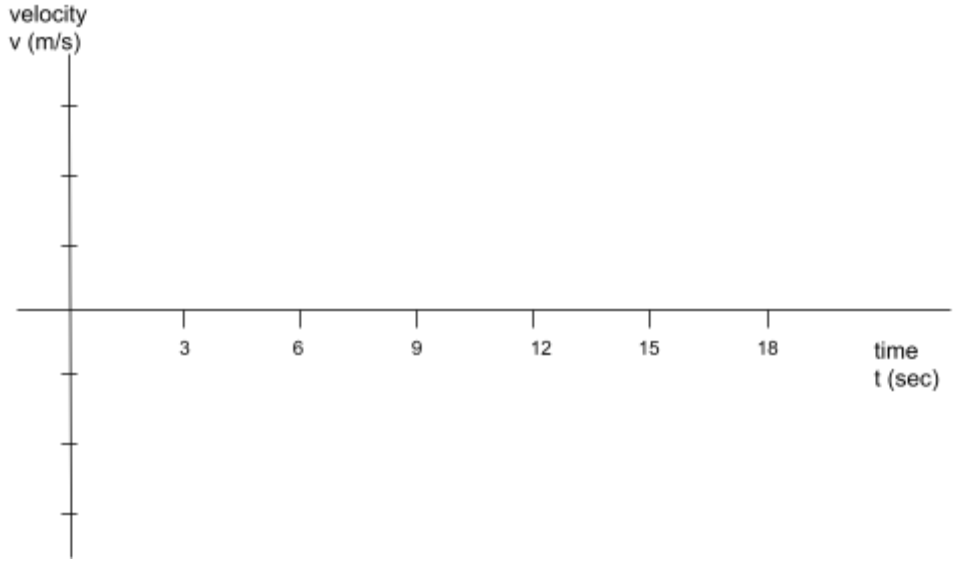
e. What was the average acceleration between t=8 sec and t=9 seconds?

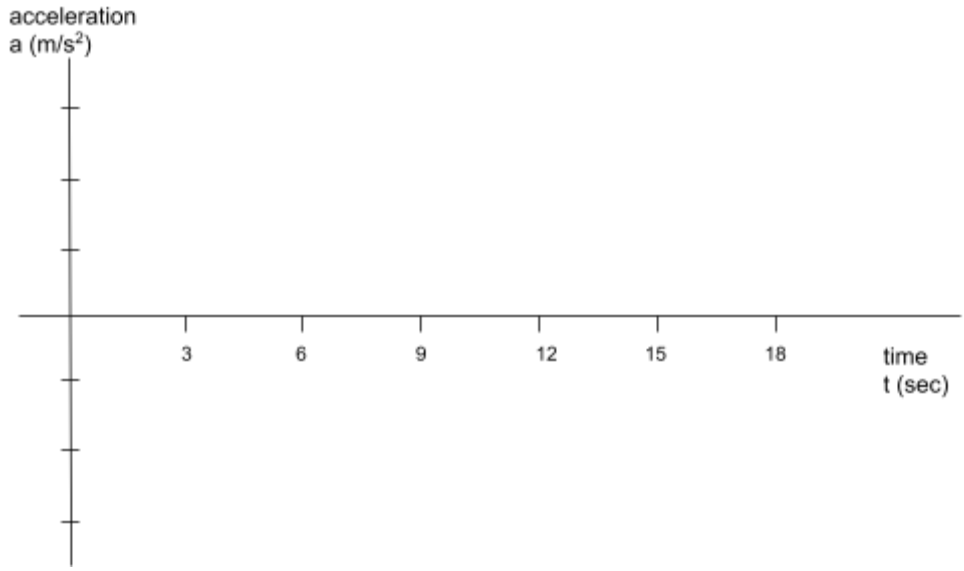
f. Clearly describe the motion of the otter in words.

The graph below gives the position vs. time graph for a 0.329kg otter as it runs horizontally.

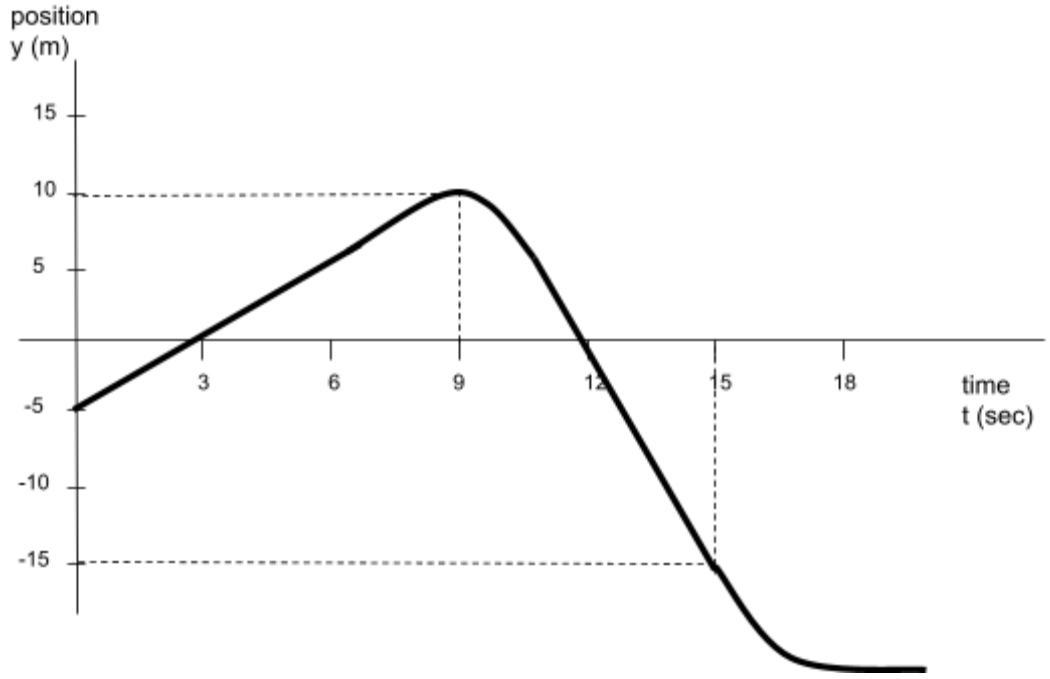


g. Sketch and label a graph of the velocity vs. time and acc. vs. time for the otter.





2. The graph below gives the position vs. time graph for a 3.54kg vulture as it flies vertically.



a. Place a small checkmark ✓ within each empty box if the instant in time or time interval satisfies the given condition. Leave the box blank if the condition is not satisfied. Ignore a box if it is greyed out.

	speeding up	slowing down	constant speed	velocity is +	velocity is -	velocity is 0	acc is +	acc is -	acc is 0
0sec									
1-2 sec									
3 sec									
5-6 sec									
8-9 sec									
9 sec									
9-10 sec									
13-14 sec									
16-18 sec									

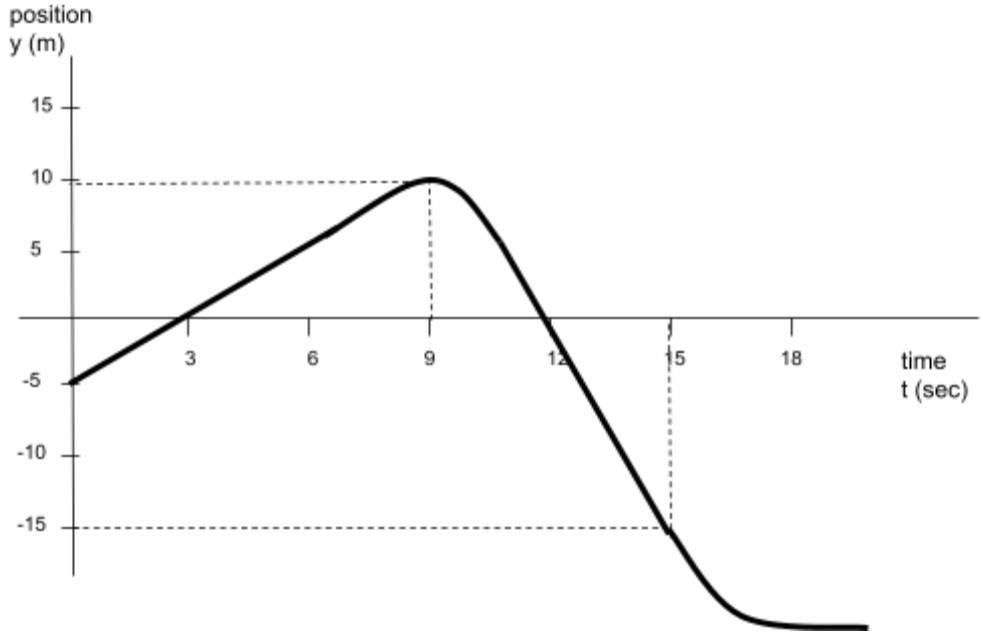
b. What was the instantaneous velocity at t=7 sec? At t=13 sec?

c. What was the instantaneous speed at t=9 sec?

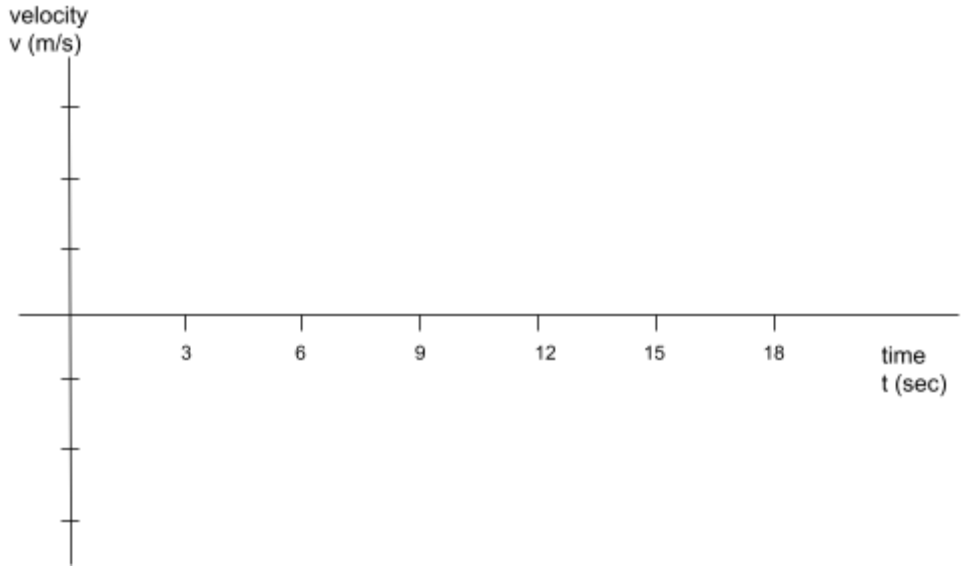
d. What was the average acceleration between t=8 sec and t=9 seconds?

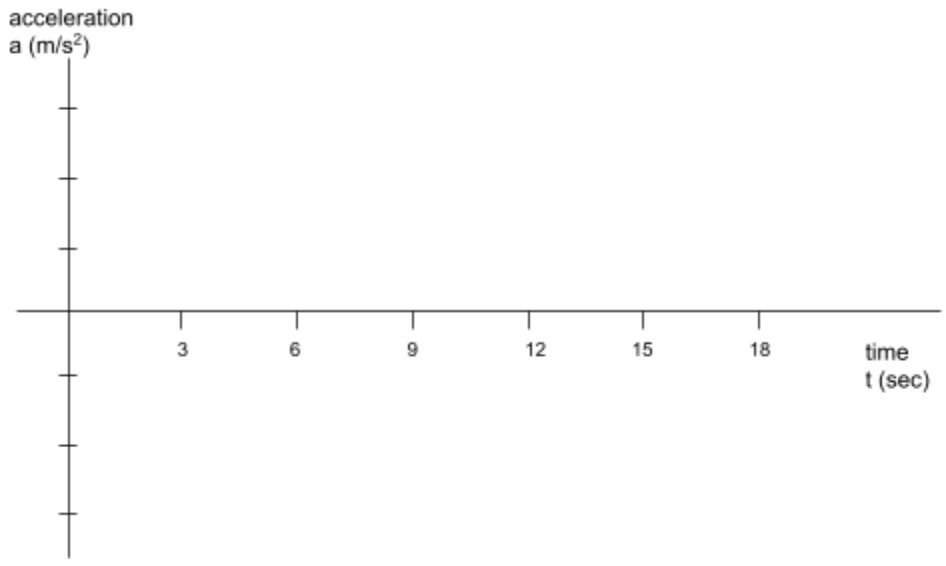
e. Clearly describe the motion of the vulture in words.

The graph below gives the position vs. time graph for a 3.54kg vulture as it flies vertically.

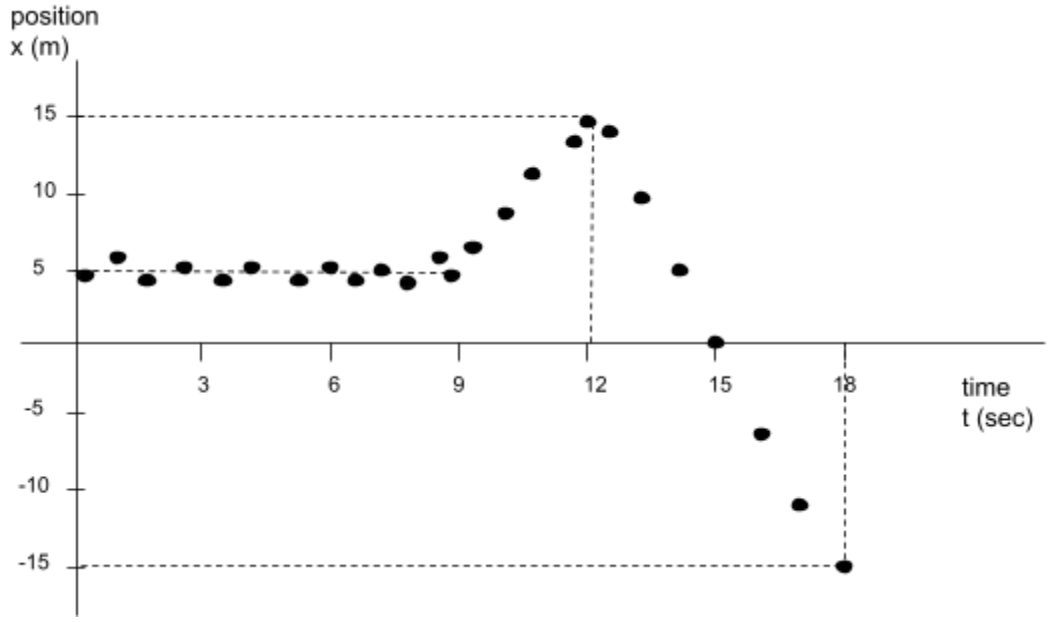


f. Sketch and label a graph of the velocity vs. time and acc vs. time for the vulture.





3. A student uses a motion sensor to track the position of a 2,760kg spaceship as it flies horizontally.



a. Place a small checkmark ✓ within each empty box if the instant in time or time interval satisfies the given condition. Leave the box blank if the condition is not satisfied. Ignore a box if it is greyed out.

	speeding up	slowing down	constant speed	velocity is +	velocity is -	velocity is 0	acc is +	acc is -	acc is 0
0sec									
2-4 sec									
8-10 sec									
10-11 sec									
12 sec									
13-15 sec									
15-17 sec									

b. What was the average velocity between t=0 sec and t=18 sec?

c. What was the instantaneous velocity at t=7 sec?

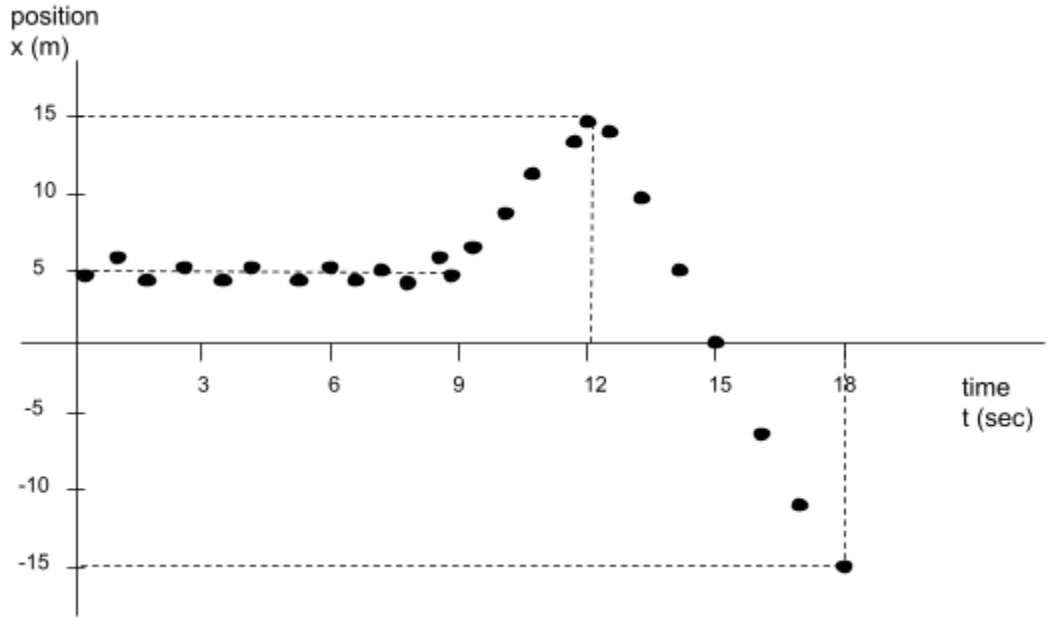
d. What was the instantaneous speed at t=14 sec?

e. What was the average acceleration between t=8 sec and t=10 seconds?

f. What was the average acceleration between t=11 sec and t=14 seconds?

g. Clearly describe the motion of the spaceship in words.

A student uses a motion sensor to track the position of a 2,760kg spaceship as it flies horizontally.



h. Sketch and label a graph of the velocity vs. time and acc. vs. time for the spaceship.

