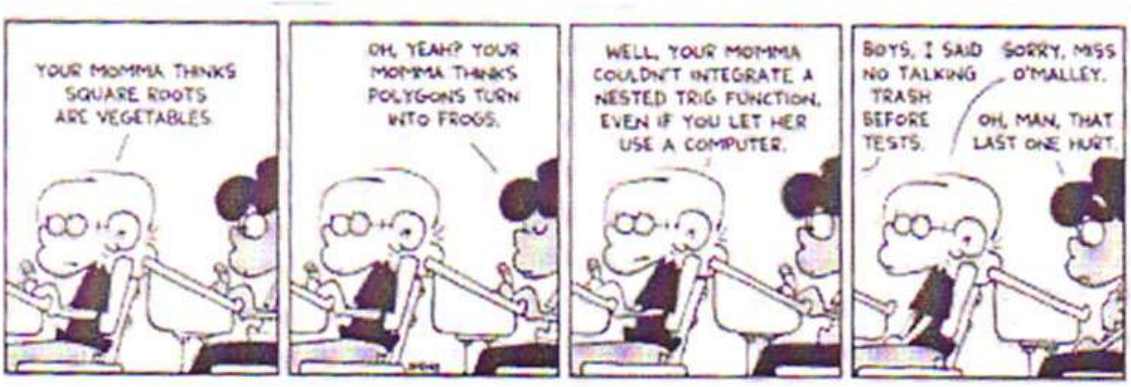
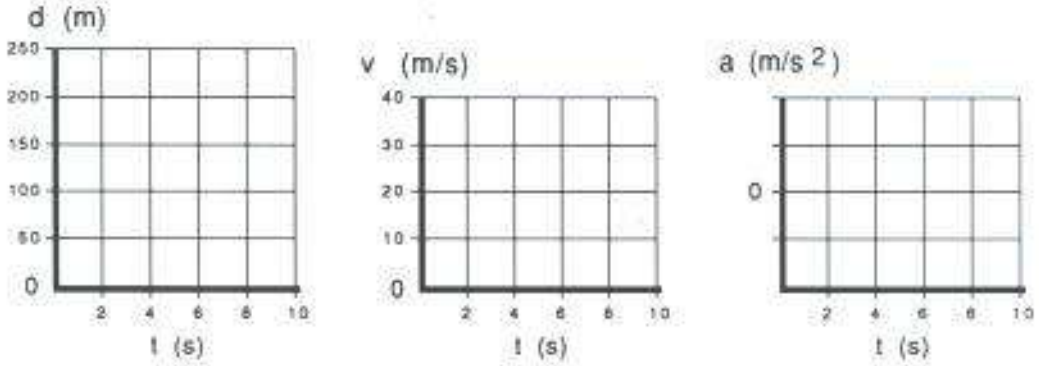
AP Physics C
Graphing

Name _____



1. A penguin accelerates uniformly from 5 m/s to 30 m/s in 10 s. Assume d(0) = 0 m. Plot its d-t, v-t and a-t graphs below.



t	d
0	
2	
4	
6	
8	
10	

d vs t equation	v vs t equation	a vs t equation

Assuming it can maintain this acceleration, what will be its speed at t=20 s?

v = 55 m/s

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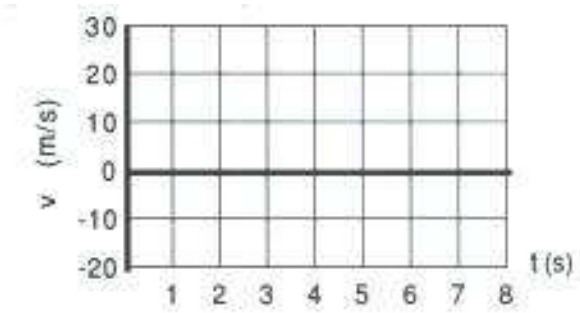
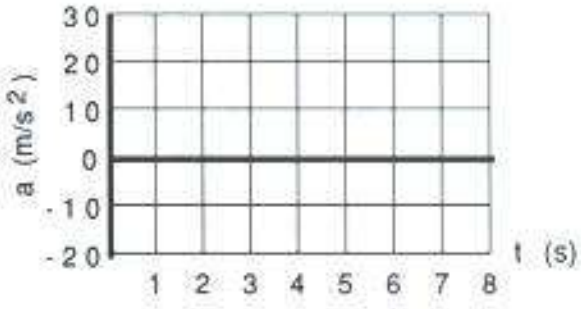
2. Plot the following journey on the axes at right (extend time axis as necessary):

- From t=0 to t=2 s, a squirrel accelerates uniformly from rest to a speed of 10 m/s.
- From t=2 s to t=4 s, the squirrel accelerates uniformly to a speed of 30 m/s.
- From t=4 to t=8 s, the squirrel accelerates uniformly until he starts to head IN THE OPPOSITE DIRECTION at a speed of -10 m/s.
- From t=8 to t=10 s, the squirrel accelerates uniformly to a final speed of +10m/s.





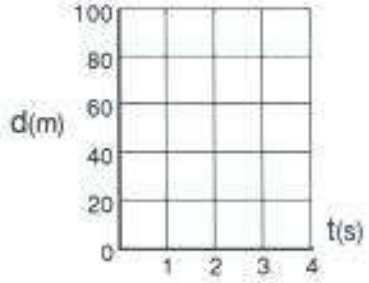
Assume the squirrel started heading to the right.

a. During which time intervals is the squirrel heading to the right?

b. During which time intervals is the squirrel heading to the left?

c. During which time intervals does the squirrel have a positive acceleration?

d. During which time intervals does the squirrel have a negative acceleration?



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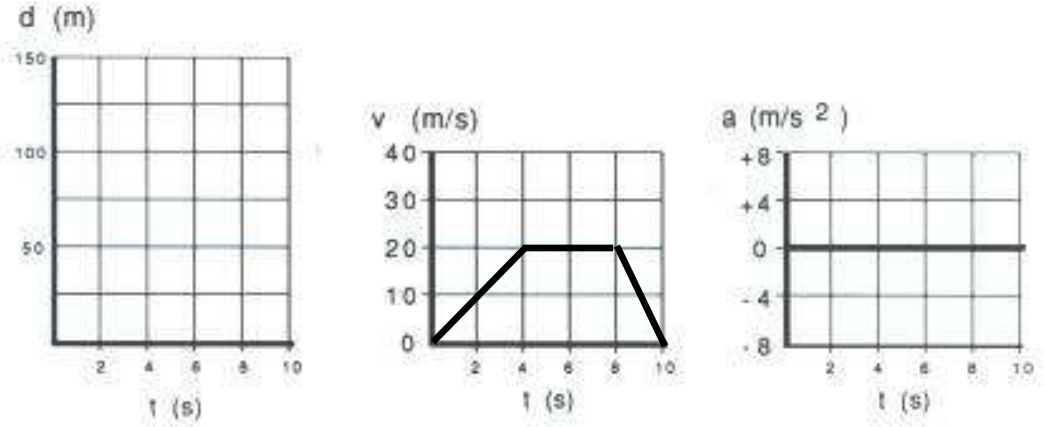
3. Using the following velocity vs time graph, plot d vs t and a vs t graphs.



Pretend that the shape of the velocity vs time graph was actually the shape of a displacement vs time graph. In this case, DESCRIBE the motion of the particle during this time in terms of its velocity and acceleration. (No numbers are required)

Time (s)	Description	Acceleration?
0-4		
4-8		
8-10		