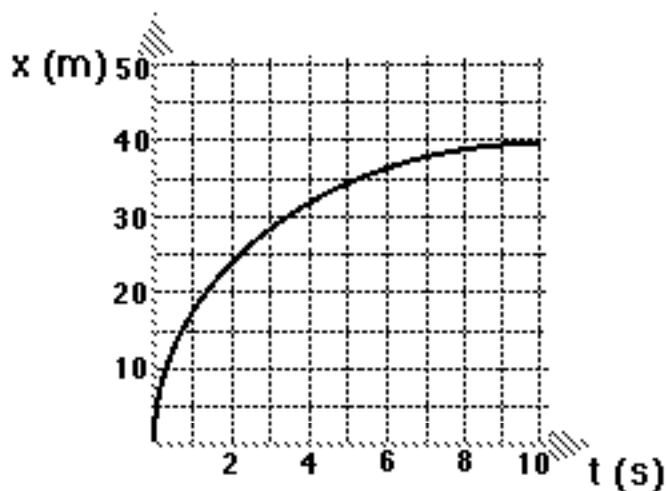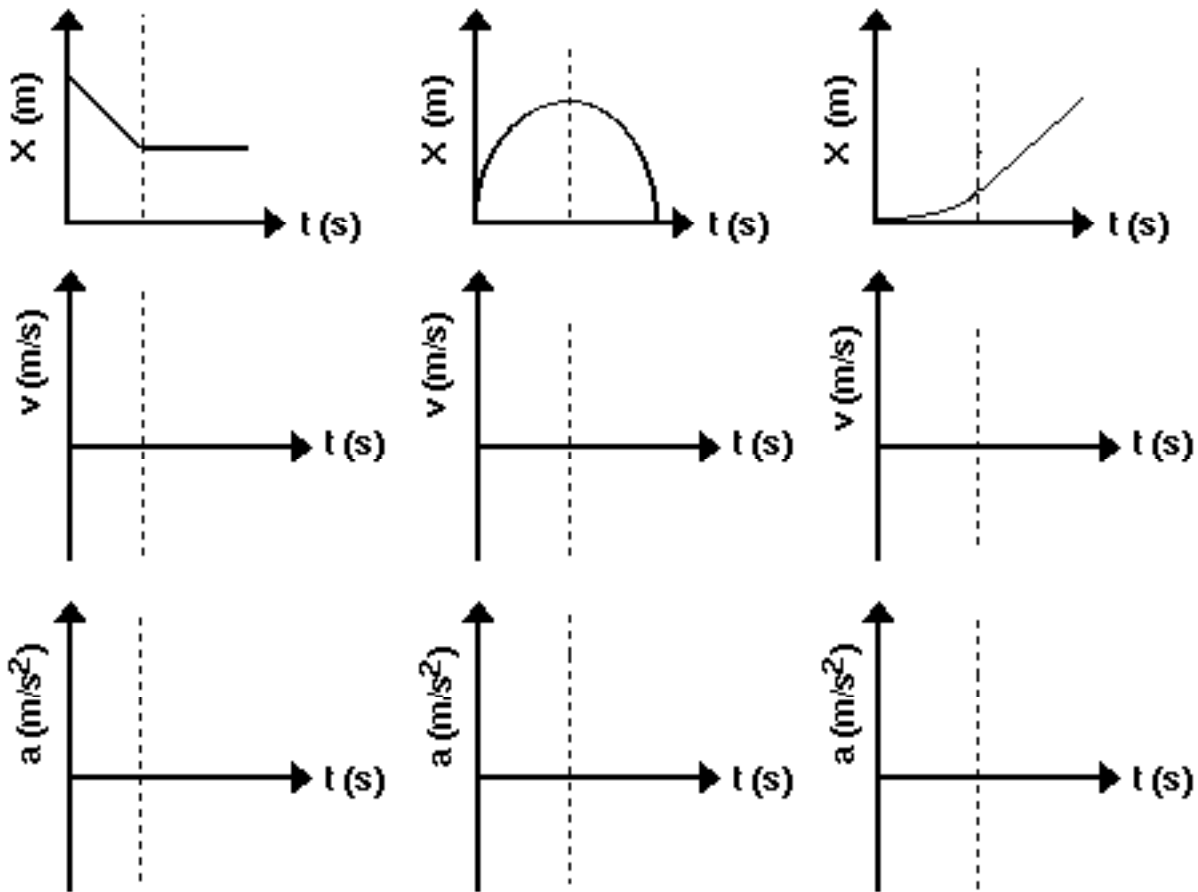# UNIT III: Review

Use the graph below to answer questions #1-4 that follow:

1. Give a written description to describe the motion of this object.

2. Draw the motion map for the object. Include velocity and acceleration vectors.

3. Explain how you could determine the instantaneous velocity of the object at $t = 2$ s.

4. Assume the initial velocity was 50 m/s; determine the acceleration of the object.

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5. A Pontiac Trans-Am, initially at rest, accelerates at a constant rate of 4.0 m/s^2 for 6 s. How fast will the car be traveling at $t = 6$ s?

6. A tailback initially running at a velocity of 5.0 m/s becomes very tired and slows down at a uniform rate of 0.25 m/s^2. How fast will he be running after going an additional 10 meters?

7. For each of the position vs time graphs shown below, draw the corresponding
   v vs **t**, **a** vs **t** , and motion map.

x (m)	x (m)	x (m)
t (s)	t (s)	t (s)

v (m/s)	v (m/s)	v (m/s)
t (s)	t (s)	t (s)

a (m/s²)	a (m/s²)	a (m/s²)
t (s)	t (s)	t (s)

8. Using the graph below, compare the kinematic behavior of the two objects.
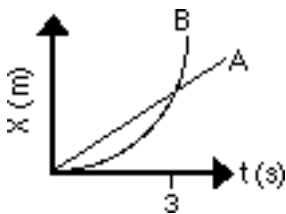
Comparison: **is A > B, A < B, or A = B,**   **How do you know?**

a. Displacement at 3 s

b. **Average** velocity from 0 - 3 s

c. **Instantaneous** velocity at 3 s