

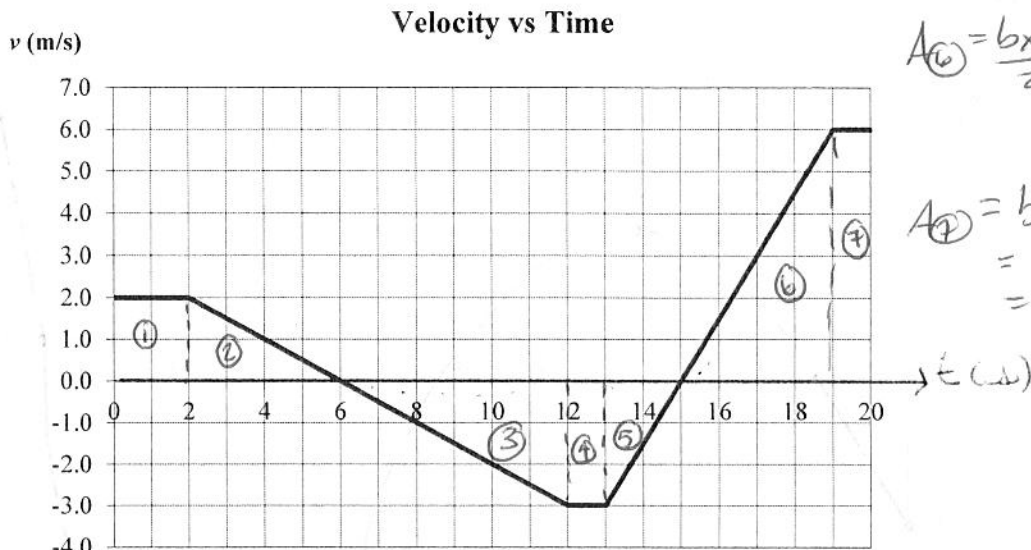
Practice Questions v-t and a-t

$$A_{(4)} = b \times h = 1s \times \frac{-3m}{s} = -3m/s^2$$

$$A_{(5)} = \frac{b \times h}{2} = \frac{2s \times -3m/s}{2} = -3m/s^2$$

$$A_{(6)} = \frac{b \times h}{2} = \frac{4s \times \frac{6m}{s}}{2} = 12m/s^2$$

$$A_{(7)} = b \times h = 1s \times 6m/s = 6m/s^2$$



$$A_{(1)} = b \times h = (2s \times 2m/s) = 4m$$

$$A_{(2)} = \frac{b \times h}{2} = \frac{(4s \times 2m/s)}{2} = 4m$$

$$A_{(3)} = \frac{b \times h}{2} = \frac{6.0m/s \times -3m/s}{2} = -9m/s^2$$

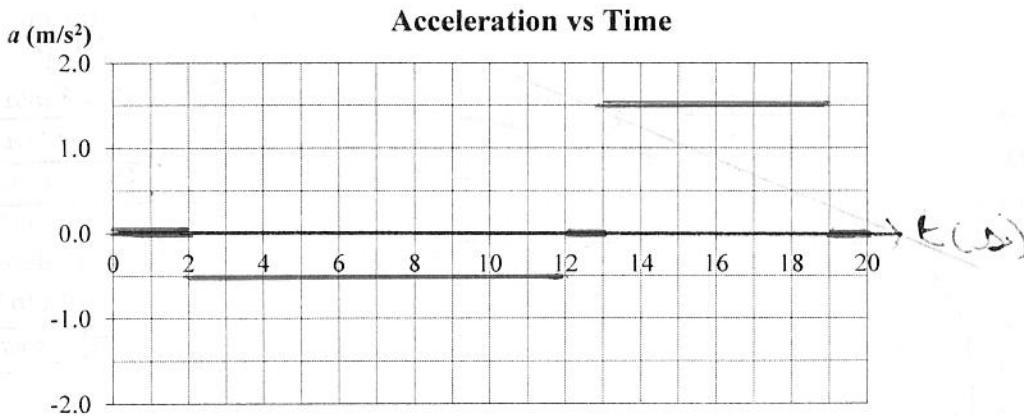
1. What is acceleration of the object at 3.0 s?  $(2s, 2m/s), (6s, 0m/s)$   
 $a = \text{slope} = \frac{0m/s - 2m/s}{6s - 2s} = -0.5m/s^2$

2. What is the average acceleration of the object from 1.0 s to 17.0 s?  
 $\vec{a}_{\text{ave}} = \frac{\vec{v}_f - \vec{v}_i}{\Delta t} = \frac{3m/s - 2m/s}{16s} = 0.0625m/s^2$

3. What is the distance covered from 0.0 s to 12.0 s?  
 distance =  $4m + 4m + 9m = 17m$

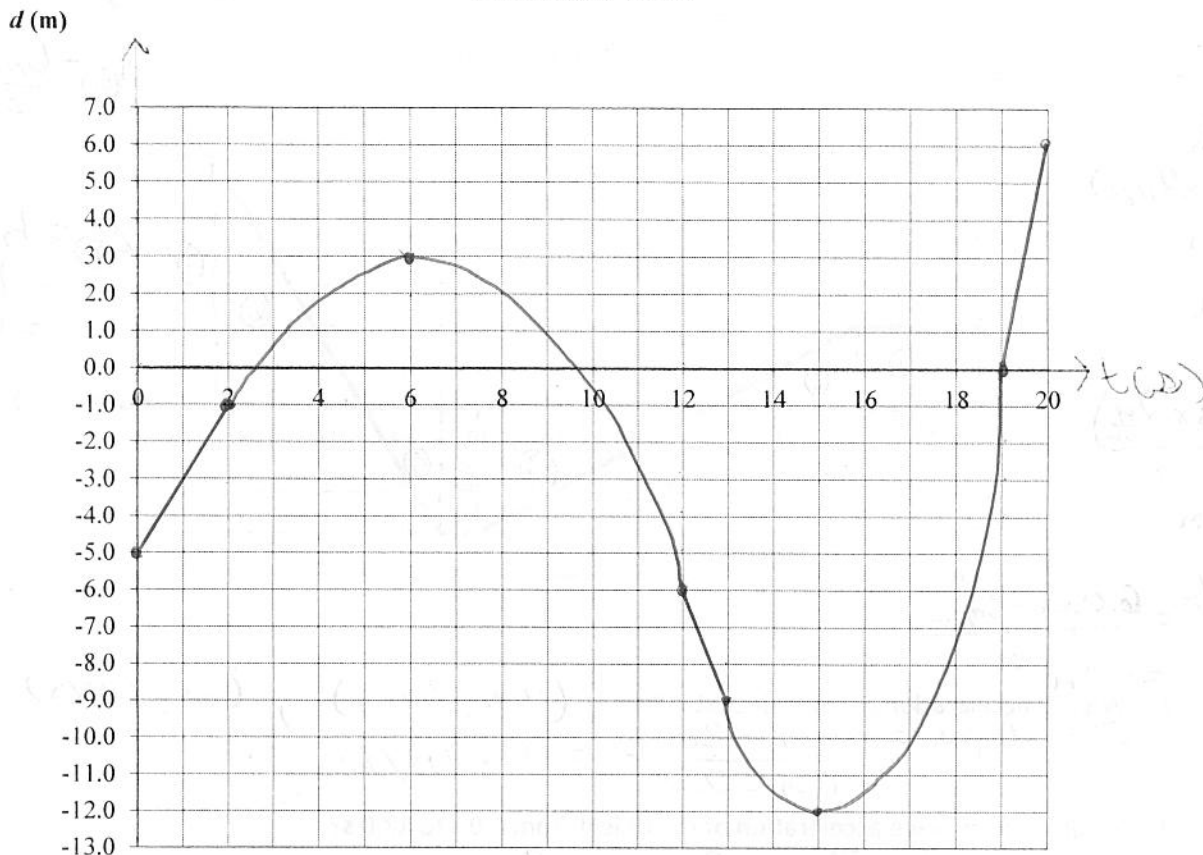
4. What is the average velocity from 12.0 s to 19.0 s?  
 $\vec{v}_{\text{ave}} = \frac{\text{displacement}}{\Delta t} = \frac{-3m + (-3m) + 12m}{7s} = \frac{6m}{7s} = 0.86m/s$

5. Draw the corresponding a-t graph below.



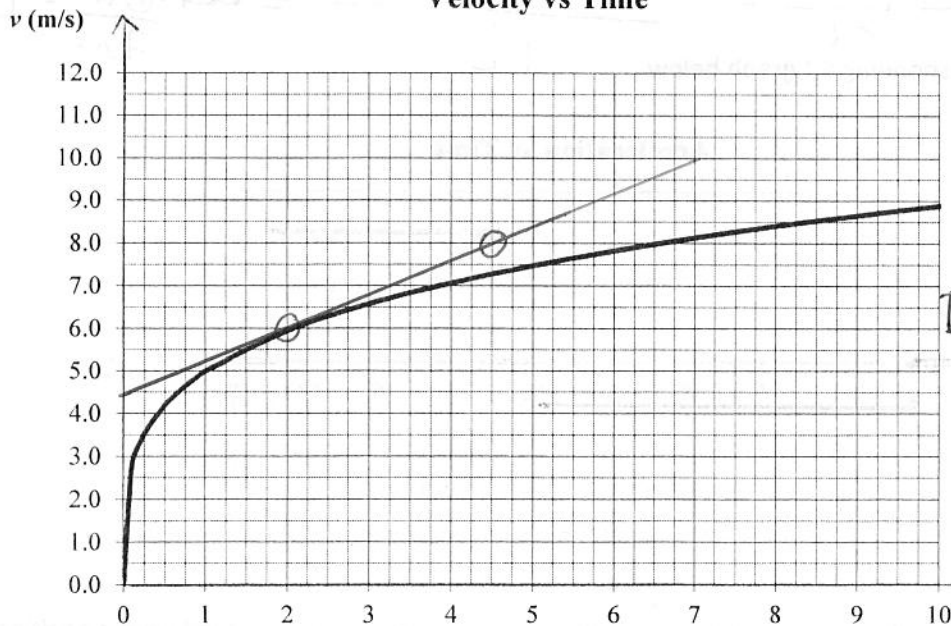
6. On the next page, draw the corresponding d-t graph. Assume the object started from a position of -5.0 m.

### Position vs Time



Consider the graph below.

### Velocity vs Time



"real" answer:  
 $a = 0.74 \text{ m/s}^2$

1. What is the acceleration of the object at 2.0 s?

Slope  $(2s, 6m/s), (4.5s, 10m/s)$   

$$a = \frac{8 \text{ m/s} - 6 \text{ m/s}}{4.5 \text{ s} - 2 \text{ s}}$$

$$a = 0.8 \text{ m/s}^2$$

2. What is the average acceleration of the object from 1.0 s to 5.0 s?

$$\vec{a}_{\text{ave}} = \frac{\vec{v}_f - \vec{v}_i}{\Delta t}$$

$$= \frac{7.5 \text{ m/s} - 5 \text{ m/s}}{4.0 \text{ s}}$$

$$\vec{a}_{\text{ave}} = 0.625 \text{ m/s}^2$$