

AP Physics Chapter 1 Conceptual Questions pg 30

- ① a. 6.21 - 3  
b. 62.1 - 3  
c. 0.620 - 3  
d. 0.062 - 2

- ② a. 6200 - 2  
b. 0.006200 - 4  
c. 1.0621 - 5  
d.  $6.21 \times 10^3$  - 3

③ Cannot tell  $\rightarrow$  it is accel.  
but no indication if going  
left or right

④  $a_x$  is negative b/c it  
is accelerating to the left

⑤  $a_y$  is positive since it is  
slowing as it moves down

⑥ positions are negative  
velocity is positive  
acceleration is positive

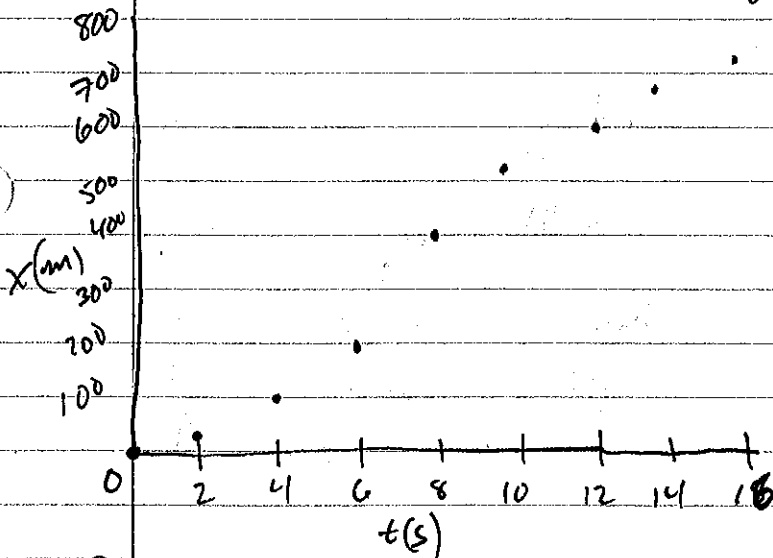
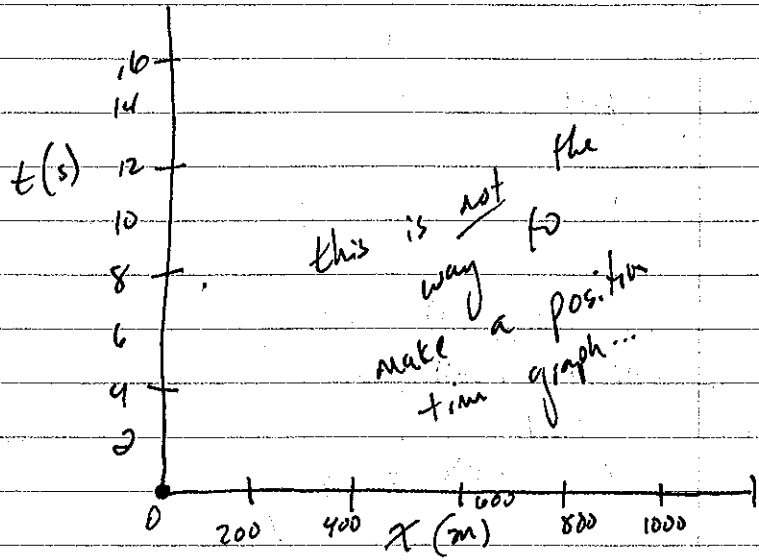
⑦ positions are negative  
velocity is negative  
acceleration is negative

⑧ positions are positive  
velocity is negative  
acceleration is negative

AP Physics Chapter 1 Exercises & Problems pg 30 - (18, 19, 20, 43, 54)

18) time (s)      position (m)

0	0
2	25
4	100
6	200
8	400
10	510
12	600
14	675
16	725



19) a student runs East at constant speed ( $300\text{m}/300\text{s} = 1\text{m/s}$ ), rests for 100s, then sprints back to starting position in 200s ( $1.5\text{m/s}$ )

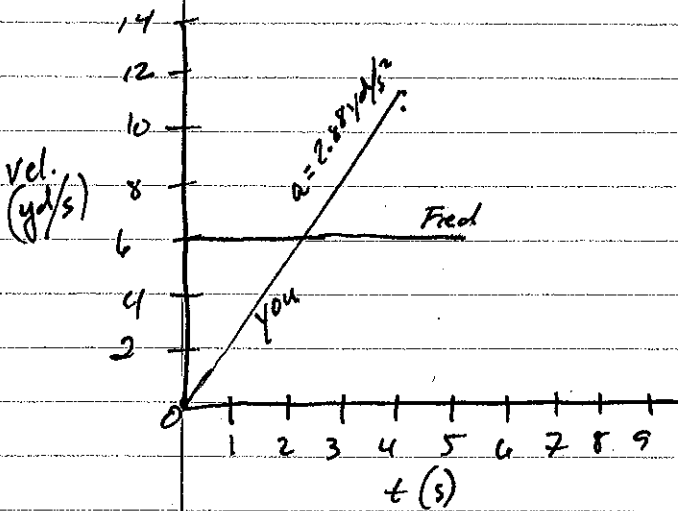
20) A car sits in a driveway for one hour, travels 60 miles West for one hour (highway?), remains stationary for an hour & then drives 20 miles East for 2 hours - (must have been a poor road w/ low speed limit)

next  
→

C1 E&P <sup>cont</sup> pg 32 (43', 54')

$$100\text{cm} \times 100\text{cm} \times 100\text{cm} = 1\text{m}^3$$

(43) velocity time graph



(54)

density =  $\frac{\text{mass}}{\text{volume}}$

$$\rho = \frac{m}{V}$$

$$\frac{2.7 \times 10^{-3} \text{ kg}}{\text{cm}^3} \times \frac{100 \text{ cm} \times 100 \text{ cm} \times 100 \text{ cm}}{1 \text{ m}^3}$$

$$\rho_{Al} = 2700 \text{ kg/m}^3$$

Alcohol 0.81 g/cm<sup>3</sup>

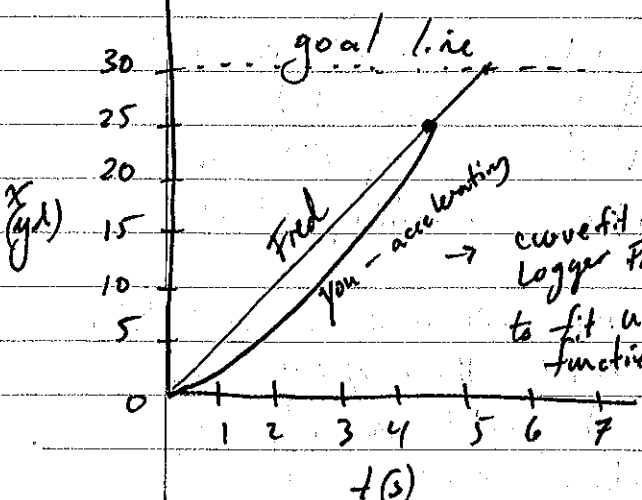
$$\frac{0.81 \text{ g}}{\text{cm}^3} \times \frac{100 \text{ cm} \times 100 \text{ cm} \times 100 \text{ cm}}{1 \text{ m}^3} \times \frac{1 \text{ kg}}{1000 \text{ g}}$$

$$\rho_{\text{Alcohol}} = 810 \text{ kg/m}^3$$

you must go 25 yards starting from rest, it will take

Fred  $t = \frac{25 \text{ yd}}{6 \text{ yd/s}} = 4.16 \text{ sec}$

to go 25 yards if you must be at same position starting from rest



→ curve fit in Logger Pro to fit user defined function  $y = \frac{1}{2} A x^2$

$$\vec{x} = \frac{1}{2} \vec{a} t^2 + \vec{v}_0 t + \vec{x}_0$$

$$\vec{x} = \frac{1}{2} \vec{a} t^2$$

$$\vec{x} = 25 \text{ yd} = \frac{1}{2} \vec{a} (4.16 \text{ s})^2$$

$$a = 2.88 \text{ yd/s}^2$$