Chapter1 & 2 problems

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Content

- Course procedure
- Exams & Homeworks
- Midterm date & time
- Answering student's questions
- Solving some problems

Outline

- Two homeworks (20%) (10% each)
- Midterm (35%)
- Final (45%)

Chapter 1 Problem 11 page 28

- P11) a) 2 dm in mm
- (1 dm = 10 cm , 1 cm = 10 mm)
- Solution:
- 2 dm ----> mm
- $2\ \text{dm} \times \frac{10\ \text{cm}}{1\ \text{dm}} \times \frac{10\ \text{mm}}{1\ \text{cm}} = 2 \times 10 \times 10\ \text{mm} = 200\ \text{mm}$

Chapter 1 Problem 11 page 28

- P11) g) 35 km/h in m/s
- (1 km = 1000 m , 1 h = 60 min , 1 min = 60 s)
- Solution:
- 35 km/h ----> m/s (35 $\frac{km}{h}$ ---> $\frac{m}{s}$)
- Nominator: (البسط)
- 35 km x $\frac{1000\ m}{1\ km}$ = 35000 m = 35 x 10^3 m
- Denominator: (المقام)
- 1h =1 hx $\frac{60\ min}{1\ h}$ x $\frac{60\ s}{1\ min}$ = 3600 s
- Answer = $\frac{nominator}{Denominator}$ = $\frac{35000}{3600}$ = 9.72 m/s

Chapter 2 problem 18 page 69

18. A bus slows down uniformly from 75.0 km/h (21 m/s) to 0 km/h in 21 s. How far does it travel before stopping?

- $V_i = 21$ m/s, $V_f = 0$ m/s, $t = 21$s
- $\Delta x = V_i t + 0.5\, a\, t^2$
- ---> $\Delta x = (21)(21) + 0.5\,(a)\,(21)^2$
- To find a
- ---> $V_f = V_i + a\, t$
- ---> $0 = 21 + (a)(21)$ ---> $21\, a = -21$ ---> $a = -1$ m/s^2 .
- ---> $\Delta x = (21)(21) + 0.5\,(a)\,(21)^2 = (21)(21) + 0.5\,(-1)\,(21)^2 = 220.5$ m

Chapter 2 problem 21 page 70

21. A car accelerates from rest at $-3.00\ m/s^2$.

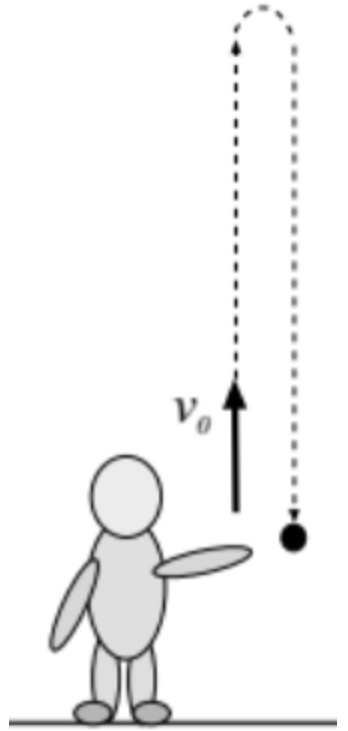
a. What is the velocity at the end of 5.0 s?

b. What is the displacement after 5.0 s?

- $V_i = 0$, $a = -3\ m/s^2$,
- A) $t = 5s$
- ---> $V_f = V_i + a\ t$
- ---> $V_f = 0 + (-3)\ (5) = -15\ m/s$
- b) $\Delta x = V_i\ t + 0.5\ a\ t^2$
- ---> $\Delta x = (0)\ (5) + 0.5\ (-3)\ (5)^2 = -\ 37.5\ m$

Chapter 2 problem 21 page 70

- A ball is thrown vertically upward with velocity 30 m/s
- A) when is the time that the ball reaches the highest point?
- b) what is the maximum height that the ball reaches?
- c) what is the ball's velocity after 2 s?
- d) what is the ball's velocity after 5 s?
- Vi = 30m/s , a = -g = -10 m/s^2 ,
- A) at max height ---> Vf = 0
- ---> Vf = Vi + a t
- ---> 0 = 30 + (-10) (t) ---> -30 = -10 t ---> t = 3 s
- b) $\Delta x = Vi\ t + 0.5\ a\ t^2$
- ---> $\Delta x = (30)\ (3) + 0.5\ (-10)\ (3)^2 = 45$ m



Chapter 2 problem 21 page 70

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- d) what is the ball's velocity after 5 s?
- Vi = 30m/s , a = -g = -10 m/s^2 ,
- c) ---> Vf = Vi + a t
- ---> Vf = 30 + (-10) (2) ---> Vf = 30 -20 ---> Vf = 10 m/s
- d) ---> Vf = Vi + a t
- ---> Vf = 30 + (-10) (5) ---> Vf = 30 -50 ---> Vf = -20 m/s