Name_***Answers***_

Acceleration BookWork Section 2-2 (odds academic, all honors.. check book for answers!)
D=Vavg*T Vavg= (Vi+Vf)/2 A= (Vf-Vi)/T

Pg 49

1) When the shuttle bus comes to a sudden stop to avoid hitting the dog, it slows from 9 m/s to 0 m/s in 1.5 s. Find the average acceleration of the bus.
Vi= 9 m/s, Vf= 0 m/s, T= 1.5 sec, A= ??
A = (0-9)/1.5 = -6 m/s^2

2) A car traveling initially at 7 m/s accelerates to a velocity of 12 m/s in 2 s. What is the average acceleration of the car?
Vi= 7 m/s, Vf = 12 m/s, T = 2 sec, A=??
A = (12-7)/2 = 2.5 m/s^2

3) Turner's treadmill starts with a velocity of -1.2 m/s and speeds up at regular intervals during a half hour workout. After 25 min, the treadmill has a velocity of -6.5 m/s . What is the average acceleration of the treadmill during this period?
Vi= -1.2 m/s, vf = -6.5 m/s, T = 25 min = 25*60=1500 sec!A=??
A = (-6.5 - -1.2)/1500= -.004 m/s^2

4) If a treadmill starts at a velocity of -2.7 m/s and has a velocity of -1.3 m/s after 5 min, what is the average acceleration of the treadmill?
Vi= -2.7 m/s, vf = -1.4 m/s, T = 5 min = 5*60=300 sec!, A= ??
A = (-1.3 - -2.7)/300 = .005 m/s^2

5) With an average acceleration of -0.5 m/s^2 , how long will it take a cyclist to bring a bicycle with an initial velocity of 13.5 m/s to a complete stop?
A= -0.5 m/s^2 , Vi = 13.5 m/s, Vf = 0 m/s, T =??
-.5 = (0-13.5)/T
-.5*T=-13.5
T= -13.5/-.5
T= 27 sec

Name__*Answers*__

Acceleration BookWork Section 2-2 (odds academic, all honors.. check book for answers!)
D=Vavg*T Vavg= (Vi+Vf)/2 A= (Vf-Vi)/T

Pg 53

1) A car accelerates uniformly from rest to a speed of 23.7 km/hr in 6.5 sec. Find the distance the car travels during this time.
Vi=0, Vf = 23.7km/hr = 23700m/3600sec =6.583 m/s, T=6.5 sec, D=???

D= (Vi+Vf)/2 *T D= (6.583+0)/2 *(6.5) D= 3.29 * 6.5 = 21.4 m

2) When Maggie applies the brakes of her car, the car slows uniformly from 15 m/s to 0 m/s in 2.5 sec. How many meters before a stop sign must she apply her brakes in order to stop at the sign?
Vi=15 m/s, Vf = 0 m/s, T = 2.5 sec, D = ???

D=(Vi+Vf)/2 *T D= (15+0)/2 * (2.5) D = 7.5 * 2.5 = 18.75 m

3) A jet plane lands with a velocity of 100 m/s and can accelerate at a maximum rate of -5.0 m/s^2 as it comes to rest. Can this plane land at an airport where the runway is 0.8 km long?
Vi = 100, Vf = 0, A =-5.0 m/s^2 D=???, T =???

A= (Vf-Vi)/T first
-5 =(0-100)/T T= -100/-5 = 20 seconds

D=(Vi+Vf)/2 *T D= (0+100)/2 * (20) D = 50 * 20 = 1000 m or 1.0 km NO!!

4) A driver in a car traveling at a speed of 78 km/hr sees a cat 100 m away on the road. How long will it take for the car to accelerate constantly to a stop in exactly 99 m?
Vi= 78 km/hr = 78000m/3600sec=21.67 m/s, Vf = 0, D=99m, T =???

D=(Vi+Vf)/2 *T 99= (21.67+0)/2 * (T)
99=10.83 * T T=99/10.83 = 9.14 sec

5) A car enters the freeway with a speed of 23 km/hr and accelerates to a speed of 86 km/hr in 3.5 min. How far does the car move while accelerating?

Vi= 23 km/hr = 23000m/3600 sec = 6.389 m/s, Vf = 86 km/hr = 86000/3600 = 23.89 m/s

T= 3.5 min= 3.5*60=210 sec, D =???
D=(Vi+Vf)/2 *T

D= (6.389+23.89)/2 * (210) D = 15.14 * 210 = 3179 m or 3.18 km