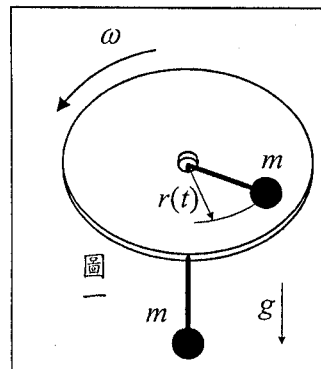
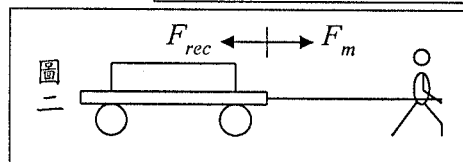


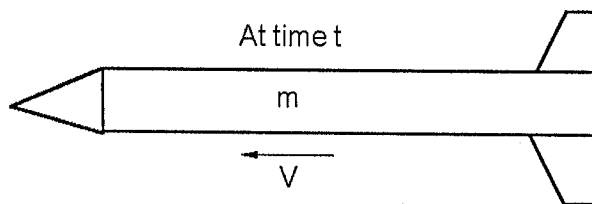
- 1.) 圖一的轉盤以固定角速率 ω 旋轉，盤上的圓球跟懸在盤下的圓球質量都為 m ，而且兩者以細線相連。假設連接兩個圓球的細線沒有質量，而且盤上的圓球以及細線跟轉盤之間都沒摩擦力，試問
- (a) 在何種狀況下， $r(t)$ 會保持不變？(10%)
- (b) 若上述(a)項的狀況不滿足，則 $r(t)$ 又將如何變化？對(b)小題的答案，只須做定性的敘述即可。(20%)



- 2.) 圖二的工人以拉力 F_m 向前拉行後方的板車，但根據牛頓第三定律，板車也將以等值的作用力 F_{rec} 往後拉工人，那板車為什麼會向前走？(20%)



- 3.) A satellite revolves around the earth in a circular orbit at an altitude of 300 km. Assume that the radius of the earth is 6400 km and the gravity on the earth surface is 9.8 m/s^2 . Determine the orbital speed of the satellite and the period for one revolution. (25%)
- 4.) As shown in the following figure (圖三), let the mass and the velocity of a solid rocket at time t be m and V , respectively. Assume the eject speed of exhaust gas to be V_e . Use the conservation of momentum to determine the thrust force F . (25%)



圖三

