

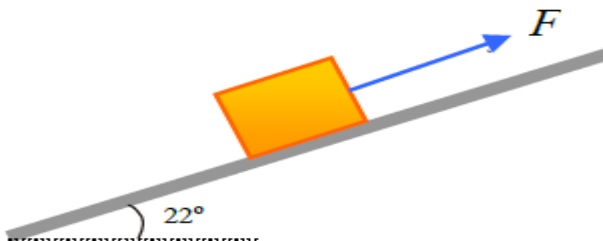
Rift Valley University
Chiro Campus

General Physics (Phys1011) Assignment for Year I Nursing Students

Maximum marks: (20%)

Solve the following problems.

1. A 600N object is to be given an acceleration of 0.7 m/s^2 . How large an unbalanced force must be act up on it?
2. A horizontal force of 140 N is needed to pull a 60kg box across the horizontal floor at constant speed. Find the coefficient of friction between the floor and box to three significant figures.
3. A rotating fan completes 1200 revolutions every minute. Consider a point on the tip of a blade, at a radius of 0.15 m.
 - A. Through what distance does the point move in one revolution?
 - B. What is the speed of the point?
 - C. What is its centripetal acceleration?
 - D. What is the period of the motion?
4. A 2 kg particle has the xy coordinates (-1.2 m, 0.5m), and a 4kg particle has the xy coordinates (0.6m, -0.75 m). Both lie on a horizontal plane. At what (a) x and (b) y coordinates must you place a 3kg particle such that the center of mass of the three-particle system has the coordinates (-0.5m, -0.7 m)?
5. A block of mass 8 kg rests on a plane inclined at 22° to the horizontal, as shown in figure below. The coefficient of static friction is 0.25, while the coefficient of kinetic friction is 0.15.



- A. What is the minimum force F , which can prevent the block from slipping down the plane?
- B. What is the minimum force F that will start the block moving up the plane?
- C. What force F is required to move the block up the plane at constant velocity?