PHYSICS 12 FORCES – REVIEW

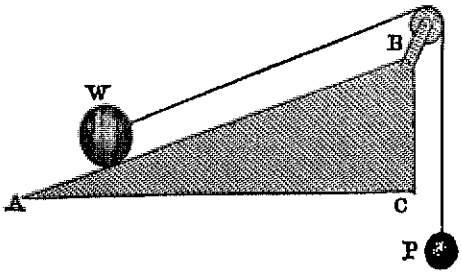
1. Consider a 25.0-kg object on an inclined plane with a degree of elevation of 35°.

a) If the surfaces are frictionless what force and at what direction is required to keep the object at rest? **Include 2 diagrams in your solution – an FBD and a sketch of the situation.**

b) What force is needed to keep the object at rest if the coefficient of static friction is 0.14? **Include 2 diagrams in your solution – an FBD and a sketch of the situation.**

c) What is the acceleration of the object if it is pushed with force of 300 N [up the plane]. The coefficient of static friction is 0.14 and the coefficient of kinetic friction is 0.10? **Include 2 diagrams in your solution – an FBD and a sketch of the situation.**

2. a) What mass of object P is required in order for the system to remain at rest, provided that the coefficient of static friction is 0.25, m_W = 4.0kg and the angle at A is 20°? What is the tension in the rope? **Include FBDs in your solution.**



b) What is the acceleration of the two masses if m_p=0.5 kg and μ_k=0.20? **Include FBDs in your solution.**