GRADE 12 PHYSICS
Assignment #2-Dynamics

1. A 60.0 g tennis ball approaches a racket at 25.0 m/s, is in contact with the racket for 0.00500 s, and then rebounds at 35.0 m/s. Find the average force that the racket exerted on the ball.

2. A 70 kg man stands on a Newton scale in an elevator. What does the scale read when the elevator is
   a) ascending at a constant velocity of 2.0 m/s,
   b) ascending at a constant acceleration of 1.0 m/s^2,
   c) descending at a constant velocity of 2.0 m/s,
   d) descending at a constant acceleration of 1.0 m/s^2, and
   e) in free fall because the cable has broken?

3. A wire is attached to two poles 30.0 m apart such that there is no sag in the wire . A 4.00 kg bird lands and perches itself in the middle of the wire resulting in the wire sagging 0.200 m below each end. Determine the magnitude of the tension in the wire. You'll need to assume a negligible mass for the wire resulting in zero sag before the bird landed.

4. A 5.00 kg object and a 3.00 kg object are suspended by a rope on either side of a frictionless pulley. What is the acceleration of each object?

5. How much force is required to push a 10 kg box up a ramp that is inclined at an angle of 16^o to the horizontal so that it has an acceleration along the ramp of 0.80 m/s^2?The force of friction between the box and the ramp is 20 N.