Using Newton’s First and Second Law

1. For each of the following situations, decide if the net force is ZERO or NON-ZERO:

 a) A car moves at a constant speed of 35 mph straight up an incline.

 b) A car moves at a constant speed of 35 mph around a circle.

 c) A car coasts to a stop across a level parking lot.

2. Determine the net force needed to accelerate a 0.50 kg hockey puck from rest to 20.0 m/s in 0.20 seconds.

3. A 1500 kg car is moving at west at 20.0 m/s. What net force (magnitude and direction) is needed to:

 a) keep the car moving west at 20.0 m/s?

 b) slow the car to a stop over a displacement of 50.0m?

4. A 747 (jumbo jet) has a mass of 442 000kg. How much net force is needed to accelerate this massive airplane from rest to 75 m/s (about 170mph) on a 2000m long runway?