1) A 1100 kg car accelerates from rest to 60.0 km/h over a distance of 45 m. Find the net force acting on the car.

2) A 1400 kg car is traveling at 24 m/s when the driver takes his foot off of the gas. The car eventually rolls to a stop after 225 m. Find the force of friction acting on the car.

3) A 950 kg car travels at a constant speed of 35 m/s. If 350 N of friction act on the car, what is the applied force provided by the engine?

4) Ernie pushes Bert on a toboggan across some frictionless snow. Bert and the toboggan have a total mass of 85 kg and they are accelerating at 3.0 m/s^2.
a. Find Ernie's applied force (F_{Ernie})

b. If Ernie and Bert hit a bare patch of concrete that exerts a force of friction on the sled of 180 N, what will their acceleration be in this time?

5) A student raises their 15 kg backpack from the floor at a constant velocity of 5.0 m/s. How much force must the student apply?

8) A 45 kg chimpanzee on a skateboard accelerates from rest to 13.0 m/s over a distance of 8.0 m. A force of friction of 65 N acts on the board. What force must the chimp apply?

6) A physics teacher attaches a 4.0 kg brick to a light string (boy do you need a new hobby!) and pulls straight up on it. The brick accelerates upwards at 3.2 m/s^2. How much force did the teacher apply to the brick?

9) A 1350 kg crash test car strikes a cement wall at 24.0 m/s and bounces back at 8.0 m/s.
a. If it is in contact with the wall for 0.90 s, what force did the wall exert on the car?

7) A 75kg skydiver falls at terminal velocity (220 km/h) before pulling the chute. If she slows to 25 km/h in 3.8 s, determine the average force of air friction that acts on her during her deceleration.

b. If the same car had no crumple zones then it would only be in contact with the wall for 0.080 s. What force would the wall exert in this case?

1) 3400 N 2) 1800N 3) 350 N 4) a. 260 N b. 0.94 m/s^2 5) 150 N 6) 52 N 7) 1800N 8) 540 N 9)a. 4.3x10^4 N b. 5.4x10^5 N