Solve the following on a separate piece of paper using methods demonstrated in class. **BE SURE TO SHOW <u>ALL WORK</u> IN ORDER TO RECEIVE FULL CREDIT – Use method for** *METHOD FOR SOLVING WORD PROBLEMS.*

1. A student wearing frictionless in-line skates on a horizontal surface is pushed by a friend with a constant force of 45 N. How far must the student be pushed, starting from rest, so that her final kinetic energy is 352 J?

   Solution: 7.8 m

2. A 2.0×10^3 kg car accelerates from rest under the actions of two forces. One is the forward force of 1140 N provided by the traction between the wheels and the road. The other is a 950 N resistive force due to various frictional forces. Use the work-kinetic energy theorem to determine how far the car must travel for its speed to reach 2.0 m/s.

   Solution: 21 m

3. A 50.0 kg diver steps off a diving board and drops straight down into the water. The water provides an upward average net force of 1500 N. If the diver comes to rest 5.0 m below the water's surface, what is the distance between the diving board and the diver's stopping point?

   Solution: 2.03 x 10² m