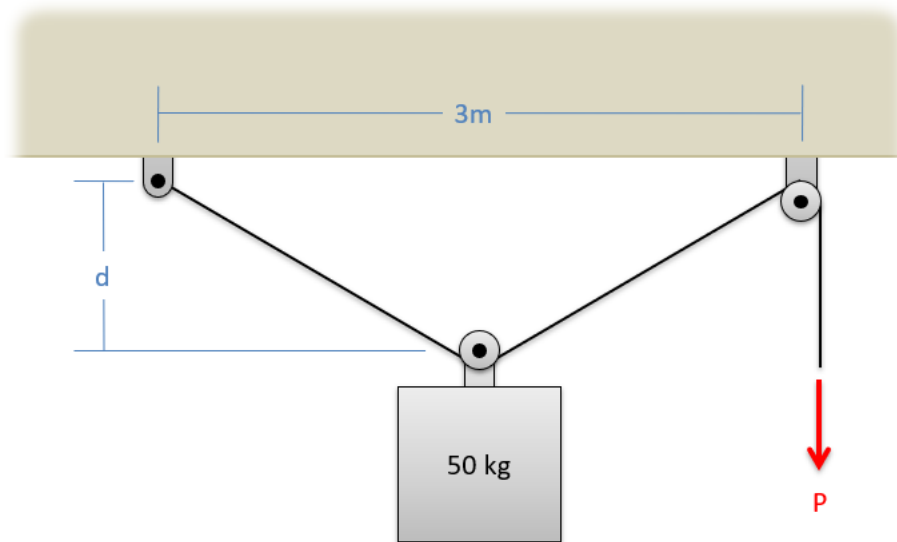# Chapter 1 Homework Problems

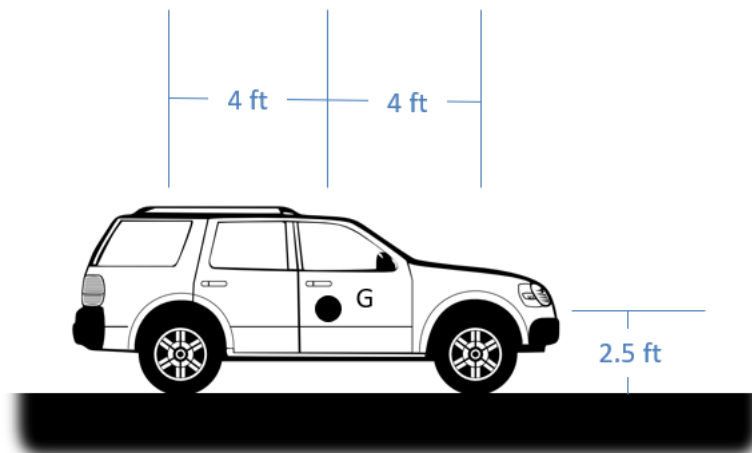## Problem 1.1

A pulley system is being used to hoist a 50 kg engine block as shown below. If distance d is currently 1 meter and we assume the pulleys are all frictionless, draw a free body diagram of the engine block with the attached pulley. Include all forces and important angles.

Problem 1.2

The car shown below has a weight of 4500 lbs and a center of mass at point G. Assuming the car is not moving and is sitting on a level surface, draw a free body diagram of the car. Include all forces and important distances.

Problem 1.3

A telephone pole sits on a rough surface. A cable attached to an excavator is then used to pull the pole along the surface as shown below. Assume the telephone pole has a mass of 350 kg and a length of 12 meters. Draw a free body diagram of the telephone pole. Include all forces, important distances, and important angles.