P6.2-2) An automobile of weight W is accelerating in a straight line with acceleration a. The wheel base of the automobile is L and its center of mass is located l_1 behind the front axle and h above the ground. Determine the dynamic load transfer. This is the amount of load that is transferred from the front tire to the rear tire during acceleration.

Given:

Find:

Solution:

Draw a free-body diagram of the car.

Calculate the normal forces on the wheels under static conditions.

N_{front} = _____

N_{rear} = _____

Calculate the normal force on the rear tire under acceleration.

Write down the car's equation of motion.

N_{rear} = _____

What is the dynamic load transfer to the rear wheel?

ΔN = _____