

**Answer on question # 55440, Physics / Mechanics — Kinematics
— Dynamics**

Question when an automobile moves with constant speed down a highway, most of the power developed by the engine is used to compensate for the mechanical engine loss due to frictional forces exerted on the car by the air and road. if the power developed by engine is 175hp, estimate the total frictional forces acting on the car when it is moving at a speed of 29 meter per sec. One horsepower equals 746 W.

Solution To find the force you have to divide power by speed:

$$F = \frac{P}{v} = \frac{175 \cdot 746}{29} \approx 4501.7 \text{ N}$$

The total frictional forces acting on the car is approximately 4501.7 N.