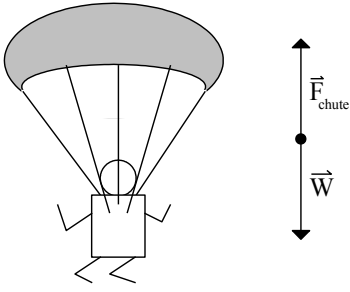


Chapter 4 Problem 29 †



Given

$$m = 50 \text{ kg}$$

$$v = 40 \text{ km/h}$$

Solution

Find the force of air on the parachute.

Since the jumper is traveling at constant velocity, the acceleration is zero. Therefore, from Newton's 2nd law

$$\Sigma \vec{F} = \vec{F}_{\text{chute}} + \vec{W} = m\vec{a} = 0$$

Then

$$\vec{F}_{\text{chute}} = -\vec{W} = -m\vec{g} = -(50 \text{ kg})(-9.8\hat{j} \text{ m/s}^2)$$

$$\vec{F}_{\text{chute}} = 490\hat{j} \text{ N}$$

†Problem from Essential University Physics, Wolfson