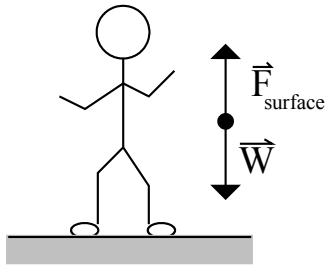


## Chapter 4 Problem 22 †



### Given

$$\vec{W} = -532\hat{j} \text{ N}$$

$$m = 60 \text{ kg}$$

### Solution

Determine the planet on which I am located.

From the definition of weight

$$\vec{W} = m\vec{g}$$

The acceleration due to gravity on this planet is then

$$\vec{g} = \frac{\vec{W}}{m} = \frac{-532\hat{j} \text{ N}}{60 \text{ kg}} = -8.87\hat{j} \text{ m/s}^2$$

Looking at Appendix E, it is found that Venus has a surface gravity of  $8.87 \text{ m/s}^2$ . Therefore, I must be on Venus.

(Vector notation is used to remind you that weight is a force and force is a vector. This problem could have been solved just as easily without vectors.)

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†Problem from Essential University Physics, Wolfson