

**Problem 1.22**

The weight of bodies may change somewhat from one location to another as a result of the variation of the gravitational acceleration  $g$  with elevation. Accounting for this variation using the relation in Prob. 1–12, determine the weight of an 80-kg person at sea level ( $z = 0$ ), in Denver ( $z = 1610$  m), and on the top of Mount Everest ( $z = 8848$  m).

***Problem 1.12***

At  $45^\circ$  latitude, the gravitational acceleration as a function of elevation  $z$  above sea level is given by  $g = a - bz$ , where  $a = 9.807$  m/s<sup>2</sup> and  $b = 3.32 \times 10^{-6}$  s<sup>-2</sup>. Determine the height above sea level where the weight of an object will decrease by 0.3 percent.

**Answer: 8862m**