

107. (a) Let the number of weight lift repetitions be  $N$ . Then  $Nmgh = Q$ , or (using Eq. 19-12 and the discussion preceding it)

$$N = \frac{Q}{mgh} = \frac{(3500 \text{ Cal})(4186 \text{ J/Cal})}{(80.0 \text{ kg})(9.8 \text{ m/s}^2)(1.00 \text{ m})} \approx 18700 .$$

- (b) The time required is

$$t = (18700)(2.00 \text{ s}) \left( \frac{1.00 \text{ h}}{3600 \text{ s}} \right) = 10.4 \text{ h} .$$