

### Problem 2.2

Using the table of conversion factors on the inside front cover of the book, convert

- a) 760 miles/h to m/s
- b)  $921 \text{ kg/m}^3$  to  $\text{lb}_m/\text{ft}^3$
- c)  $5.37 \times 10^3 \text{ kJ/min}$  to hp

### Problem 2.7

A supersonic aircraft consumes 5320 imperial gallons of kerosene per hour of flight and flies an average of 14 hours per day. It takes roughly seven tons of crude oil to produce one ton of kerosene. The density of kerosene is  $0.965 \text{ g/cm}^3$ . How many planes would it take to consume the entire annual world production of  $4.02 \times 10^9$  metric tons of crude oil?

### Problem 2.9

A waste treatment pond is 50 m long and 15 m wide, and has an average depth of 2m. The density of the waste is  $85.3 \text{ lb}_m/\text{ft}^3$ . Calculate the weight of the pond contents in  $\text{lb}_f$ , using a single dimensional equation for your calculations.