1. • (a) While vacationing in Europe, you feel sick and are told that you have a temperature of 40.2°C. Should you be concerned? What is your temperature in °F? (b) The morning weather report in Sydney predicts a high temperature of 12°C. Will you need to bring a jacket? What is this temperature in °F? (c) A friend has suggested that you go swimming in a pool having water of temperature 350 K. Is this safe to do? What would this temperature be on the Fahrenheit and Celsius scales?

20. • In an effort to stay awake for an all-night study session, a student makes a cup of coffee by first placing a 200.0 W electric immersion heater in 0.320 kg of water. (a) How much heat must be added to the water to raise its temperature from 20.0°C to 80.0°C? (b) How much time is required if all of the heater's power goes into heating the water?

23. • You are given a sample of metal and asked to determine its specific heat. You weigh the sample and find that its weight is 28.4 N. You carefully add 1.25×10^4 J of heat energy to the sample and find that its temperature rises 18.0 C°. What is the sample's specific heat?

39. •• **Steam burns vs. water burns.** BIO What is the amount of heat entering your skin when it receives the heat released (a) by 25.0 g of steam initially at 100.0°C that cools to 34.0°C? (b) by 25.0 g of water initially at 100.0°C that cools to 34.0°C? (c) What do these results tell you about the relative severity of steam and hot-water burns?