Ch. 12

68. We’ll use $R_{10}$ for the percent relative humidity at temperature of 10°C, and $R_{40}$ for that at 40°C. Say that the partial pressure of water vapor in the air is the same at each of these temperatures. Then, using the accompanying vapor pressure curve for water, determine the ratio of the two relative humidity values, $\frac{R_{10}}{R_{40}}$.

Ch. 13

4. The rate at which energy is conducted from the blood capillaries beneath the skin to the surface is 240 J/s. The energy is transferred a distance of $2.0 \times 10^{-3}$ m through a body whose surface area is 1.6 m$^2$. Assuming that the thermal conductivity is that of body fat, determine the temperature difference between the capillaries and the surface of the skin.

10. In a house the temperature at the surface of a window is 25°C. The temperature outside at the window surface is 5.0°C. Heat is lost through the window via conduction, and the heat lost per second has a certain value. The temperature outside begins to fall, while conditions inside the house remain the same. As a result, the heat lost per second increases. What is the temperature at the outside window surface when the heat lost per second doubles?