PROBLEM 1.52

$T_{gas} = 1985°C$

Using Eq. 1.17

$T(K) = 1985°C + 273.15 = 2258.15\,K$ ←

Using Eq. 1.16

$T(°R) = 1.8\,(2258.15) = 4064.67\,°R$ ←

Using Eq. 1.18

$T(°F) = 4064.67 - 459.67 = 3605\,°F$ ←

PROBLEM 1.53

T_M = Measured temperature = 40°C
T_N = Normal temperature = 37°C

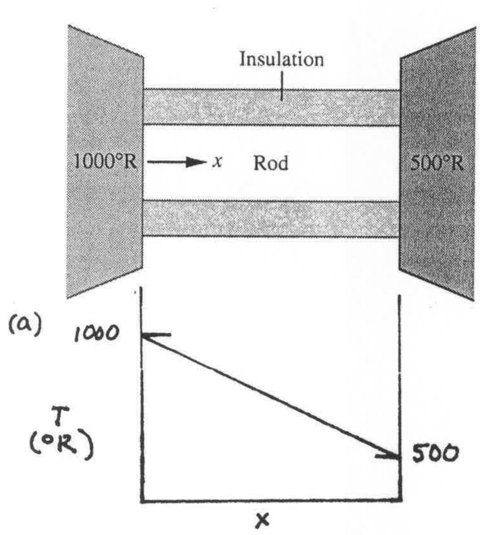
Using Eq. 1.19

$T_M = 1.8(40) + 32 = 104°F$ ←
$T_N = 1.8(37) + 32 = 98.6°F$

PROBLEM 1.54

See Fig 1.14. At the steam point, for instance, 671.67 Rankine degrees correspond to 373.15 Kelvin degrees. The Kelvin is the larger unit.

PROBLEM 1.55



(b) Apply the test for equilibrium given in Sec. 1.3.4—namely, think of isolating the system and watching for changes in observable properties. In this instance, the rod is the system and the relevant observable is its temperature. If the rod is also insulated on its ends, its temperature will eventually become uniform throughout, indicating that the rod was not in equilibrium initially.