

5.24 Estimate the time required to hard-cook an egg if:

- The minor diameter is 45 mm.
- k for the entire egg is about the same as for egg white. No significant heat release or change of properties occurs during cooking.
- \bar{h} between the egg and the water is 1000 W/m²K.
- The egg has a uniform temperature of 20°C when it is put into simmering water at 85°C.
- The egg is done when the center reaches 75°C.

<i>Material</i>	<i>Temperature Range</i> (°C)	<i>Density</i> ρ (kg/m ³)	<i>Specific Heat</i> c_p (J/kg·K)	<i>Thermal Conductivity</i> k (W/m·K)	<i>Thermal Diffusivity</i> α (m ² /s)
Egg white	20		3400	0.56	1.37×10^{-7}