

Textbook: Yunus A. Çengel

Chapter: 4.

Examples: 1, 2, 3, 5 (analytical), 6 (analytical), 7, 8.

Problems: 15, 22, 35, 43, 53, 61, 62, 65.

Special Remarks:

- For P.43: Use either temperature charts or analytical equations for a one-dimensional cylinder.
- Answer for P.53: $T(x, t = 10h) = -10^{\circ}\text{C}, -8.5^{\circ}\text{C}, -7.0^{\circ}\text{C}, -2.8^{\circ}\text{C}$.
- Answer for P.61: (a) $T = 86.5^{\circ}\text{C}$; (b) $T = 85.6^{\circ}\text{C}$; (c) $Q = 160 \text{ kJ}$;
- Answer for P.62: $T = 72.9^{\circ}\text{C}$.
- Answer for P.65: When will the first liquid droplets appear? $t = 23 \text{ hours}$. Hint: Use the mirror image concept for one of the 1D shapes that takes advantage of thermal symmetry.