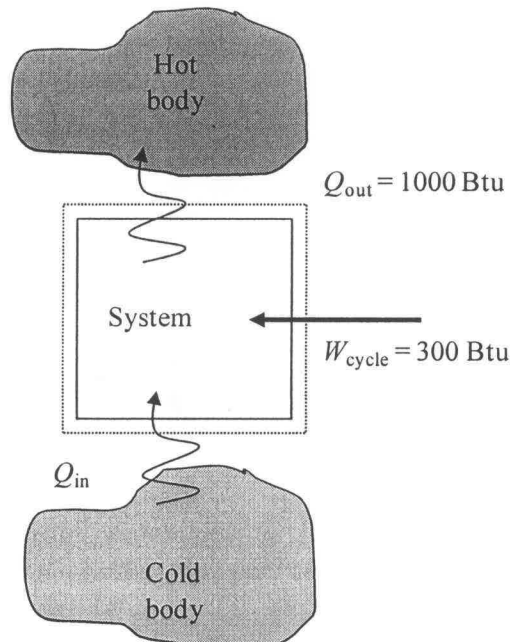


Problem 2.85:

A refrigeration cycle operating as shown in Fig. 2.17b has $Q_{\text{out}} = 1000 \text{ Btu}$ and $W_{\text{cycle}} = 300 \text{ Btu}$. Determine the coefficient of performance for the cycle.

Solution:Schematic and Given Data:Analysis:

Using the following, determine β

$$\beta = \frac{Q_{\text{in}}}{W_{\text{cycle}}}$$

$$W_{\text{cycle}} = Q_{\text{out}} - Q_{\text{in}}$$

$$Q_{\text{in}} = Q_{\text{out}} - W_{\text{cycle}} = (1000 - 300) \text{ Btu} = 700 \text{ Btu}$$

$$\beta = \frac{700 \text{ Btu}}{300 \text{ Btu}} = 2.33$$

