Example 20.3. *A Carnot engine whose low temperature reservoir is at 7°C has an efficiency of 50%. It is desired to increase the efficiency to 70%. By how many degrees should the temperature of the high temperature reservoir be increased?*

Soln.

Example 20.4. *The efficiency of a Carnot engine is $\frac{1}{6}$. If on reducing the temperature of the sink by 65°C, the efficiency becomes $\frac{1}{3}$, find the temperatures of the source and the sink between which the engine is working.*

Soln.

Example 20.5. A Carnot engine whose temperature of the source is 400 K takes 200 calories of heat at this temperature and rejects 150 calories of heat in the sink. What is the temperature of the sink? Calculate the efficiency of the engine.

Soln.

Example 20.6. *A Carnot engine is operated between two reservoirs at temperatures of 450 K and 350 K. If the engine receives 1 kcal of heat from the source in each cycle, calculate (i) amount of heat rejected to the sink in each cycle, (ii) efficiency of the engine and (iii) work done by the engine in each cycle.*

Soln.

Example 20.7. *An engine works in a Carnot cycle between the temperatures 100°C and 0°C. If the work done in the cycle is 1200 kilogram-metres, find how much heat, measured in calories, is taken in at the higher temperature.*

Soln.