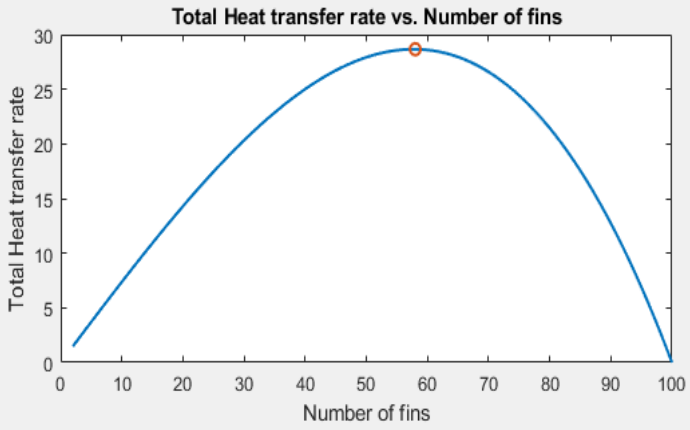
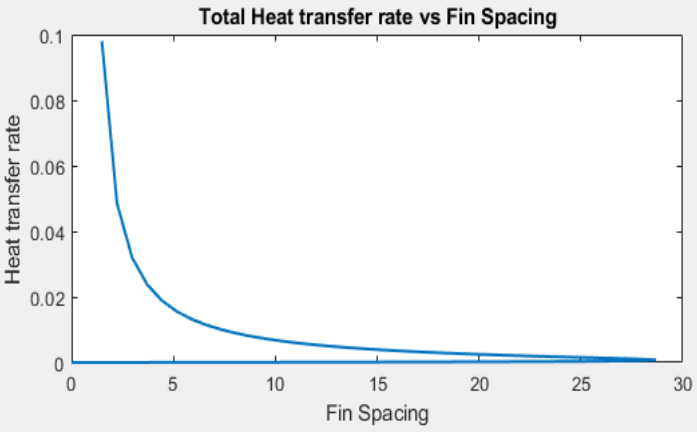
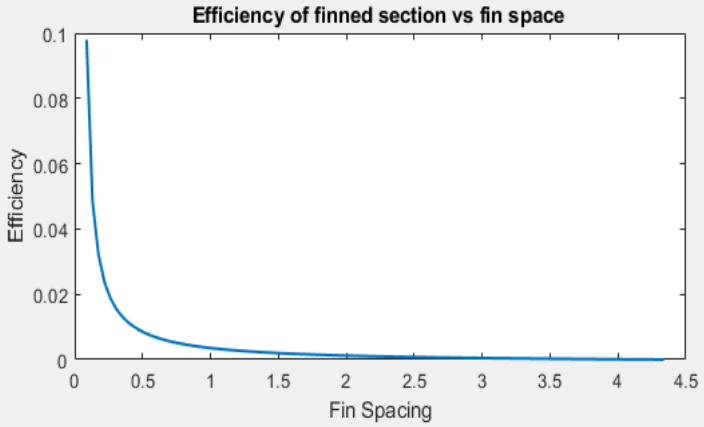
Report

For solving the problem, I plot 3 graphs

1. Total heat transfer rate vs no of fins
2. Total heat transfer rate vs Fin Spacing
3. Efficiency of finned section vs Fin space







Equations used to solve problem:-

q = N*M*tanh(m*L)

fin space = (0.1-(N*0.001))/(N-1)

eff = (q/(h*0.1*10*theta_b))*100

Here,

q= total heat transfer rate

N= No. of Fins

M = sqrt(h*P*k*A*theta_b)

m= sqrt((h*P)/(k*A))

L = Length of the fin

h= heat transfer coefficient during convection

theta_b = difference between surrounding temperatures and heat sink temperature

Eff = heat transfer rate if fin is present/heat transfer if no fin is present

Optimum no of fins came out 58