1. Analize a composite wall by findinf the heat transfer rate and then solve same question while the thickness of the brick is encreased to 32 cm and comment on the results.
   DATA:
   3m high and 5m wide wall consists of 32cm long and 22cm cross section horizontal bricks (k=0.72 W/m°C) separeted by 3cm of plaster layers (k=0.22 W/m°C).
   2cm plaster layers on each side of the brick and 3cm of rigid foam (k=0.026 W/m°C) on the inner side of the wall.
   Indoor temperature: 20°C
   outdoor temperature: -10°C
   Inner side convection heat transfer: h1=10 W/m2
   Outside convection heat transfer: h2= 40 W/m2

Inner Convection:

R1conv = 1/h1*A1 = 1/ 10 * [(0.015+0.22+0.015m)*1m] = 1/10 * 0.25 = 0.4 W/°C

Rfoam= Lfoam / kfoam * A1 = 0.03m/ 0.026 *[(0.015+0.22+0.015m)*1m] = 0.03/0.026*0.25 = 4.615 W/°C

Rbrick= Lbrick/ kbrick * Abrick = 0.32m/ 0.72*(0.22*1m) = 2.02 W/°C

Rplaster= Lplaster/kplaster * Aplaster = 0.32m/ 0.22*(0.015*1m) = 9.696 W/°C

Rtotal = (1/brick) + [(1/Rplaster)*2] = 1/2.02 + (9.69*2) = 10.08 + 19.38 = 29.46 W/°C

Outdoor Convection:

R2conv= 1/h2*A1 = 1/ 40 * [(0.015+0.22+0.015m)*1m]= 0.1 W/°C