water is 80°C in copper pipe 10cm long and 2•6cm in diameter is surrounded by air at temperature of 10°C.How much heat is lost by convection in one hour[Take convection constant =9•24¬m¬²k

The rate of heat loss, *q*, (W or J/s) is given by



where *h* is the convection constant (W/m2 K), *A* is the surface area (m2) and *T* is the temperature difference (K). The area in this case is

,

where *D* is the diameter, so



The total energy lost in time *t* (1 hour = 3600 s) is then

