1) Calculate **the area** of the solar collectors needed to heat **110 liters** of water per day, from degrees from 20C° to 90C° in January in Iraq, assuming that the average solar radiation daily in this month in Iraq reaches 2307watt.d / m^2, and the efficiency of solar collectors It reaches 50%, and the number of hours of sunshine is 14h/day.)
Specific heat Water = 4186J/Kg.m, and its density is 1Kg/m^3.)

Estimate the number of panels in an array required to supply hot water to a summer home if 100 gal of tap water per day are to be heated from 10 to 50°C. Assume that the average efficiency of the array is 60 percent and that the average daily insolation intercepted by the array is 5 kw-hr/m^2-day. Each panel has an area of 1.5 m^2.

Calculate the area of the solar collectors needed to heat 80 gallons of water per day (1 gallon of Water = 4.5Kg at room temperature) From 20C^o to 90C^o in January , assuming that the average daily solar radiation in this month reaches 500watt.d /m^2. And that the efficiency of solar collectors reaches 50%, and that the number of hours of brightness The sun is 12h.
(Specific heat of water = 4186J/Kg.m