an electric heater of resistance 8 ohm draws 15A current from the service mains 2 hours. Calculate the rate at which heat is developed in the heater.

Solution

The rate of power consumption is the wattage per unit time, and so since you know the amperage I and the resistance R, you can calculate the voltage V (Ohm's Law):

$V = I * R,$

and once you have the voltage, since you already have the amperage, you can find the power
$P = I * V = I * I * R = I^2 * R = 15^2 * 8 = 1800\ watts = 1.8\ kwatts$

The "two hours" is not necessary or useful at all.

Answer: 1800 $watts$.