

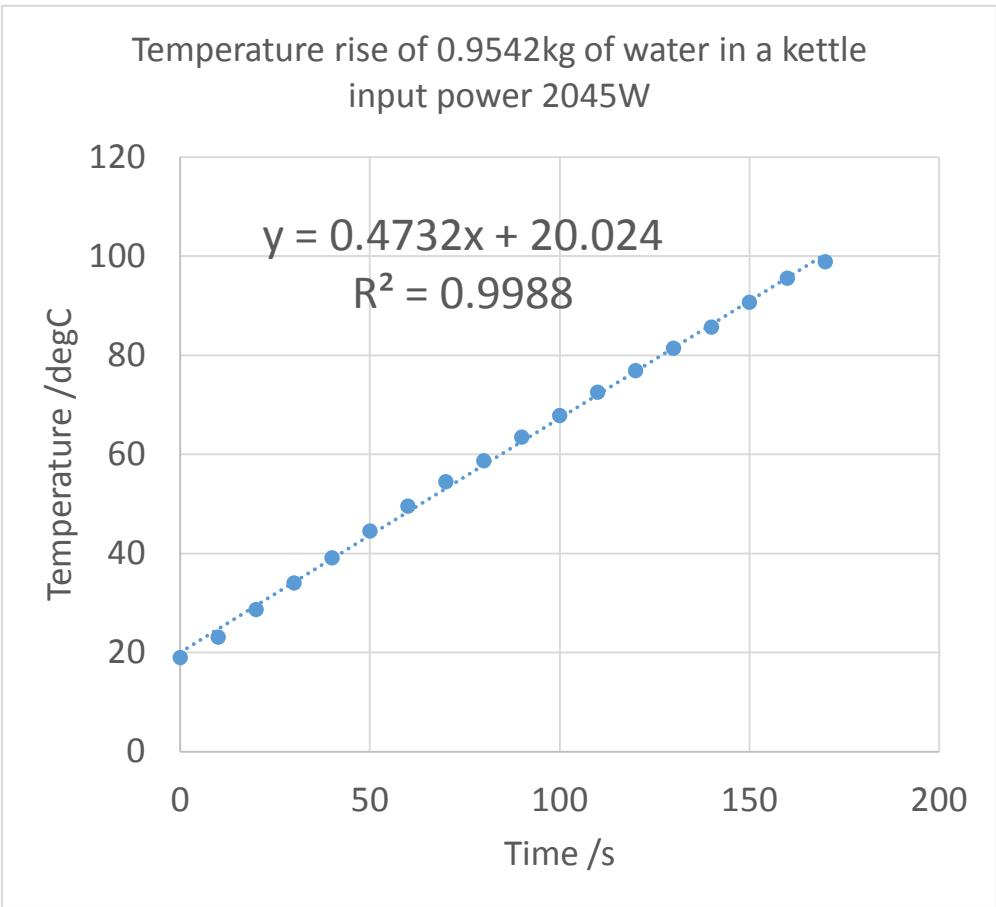
ENERGY TO RAISE 1kg by 1 degree Celsius or Kelvin      Actual value is about 4180 J/kg/K

SPECIFIC HEAT CAPACITY OF WATER  
27/02/2020

Mass of water /kg	0.9542
Kettle input voltage /V	235
Kettle input current /A	8.7
Kettle input power /W	2044.5

$$\Delta E = cm\Delta T$$
$$\Delta E = P\Delta t$$
$$\therefore cm\Delta T = P\Delta t$$
$$c \frac{\Delta T}{\Delta t} = \frac{P}{m}$$
$$c = \frac{P}{m \times \Delta T / \Delta t}$$
$$c = \frac{2044.5\text{J/s}}{0.9542\text{kg} \times 0.4732\text{K/s}}$$
$$c = 4528\text{J/kg/K}$$

t /s	Temperature /deg C
0	19.01
10	23.13
20	28.7
30	34.06
40	39.13
50	44.54
60	49.56
70	54.49
80	58.72
90	63.49
100	67.84
110	72.55
120	76.9
130	81.42
140	85.69
150	90.7
160	95.56
170	98.87



To get an answer of exactly 4180 J/kg/K, assume power P is 8.3% too high.  
This means  $1 - 1/1.0833 = 7.7\%$  power loss due to heating of the kettle etc.