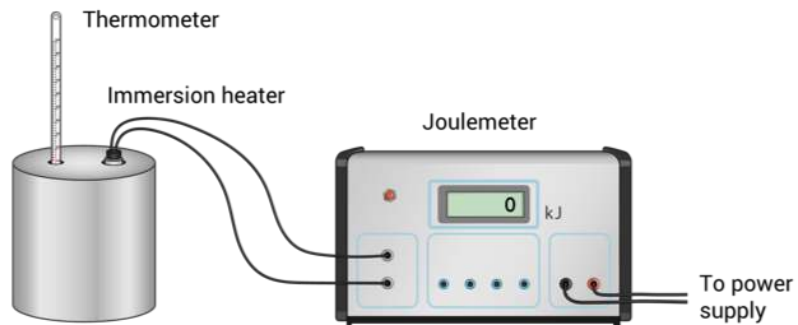


0	1
---	---

Jafar is using the below setup to heat a steel cylinder of mass 1.6 kg. The initial temperature of the steel used was 20 °C.



0	1	.	1
---	---	---	---

The reading on the joulemeter was observed to be 48 kJ after four minutes. Calculate the power which was delivered to the immersion heater.

Power = _____ W

[2 marks]

0	1	.	2
---	---	---	---

Define what is meant by the specific heat capacity of a material.

[2 marks]

0	1	.	3
---	---	---	---

The specific heat capacity of the steel used was 500 J/kg °C. Estimate what the temperature of the steel would have been after it had been heated for four minutes.

Temperature = _____ °C

[2 marks]

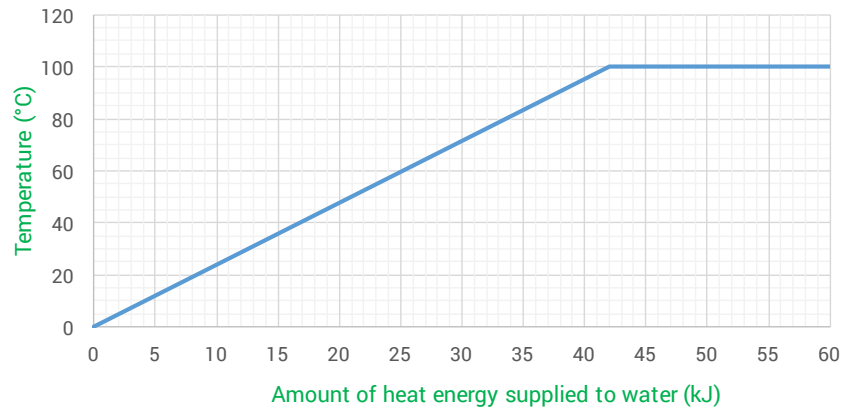
0	1	.	4
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When Jafar actually performed the experiment he measured a temperature lower than that which is estimated from the calculation of the previous question. Explain why.

[2 marks]

0	2
---	---

A small amount of freezing water is placed into a saucepan before being heated on a gas stove. The below graph shows how the temperature of the water changes with time.



0	2	.	1
---	---	---	---

Show that 100 g of water is being heated in the saucepan.

The specific heat capacity of water is $4200 \text{ J/kg } ^\circ\text{C}$. You may assume that the amount of energy lost by the water while it is being heated is negligible.

[3 marks]

0	2	.	2
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Describe and explain the variation in the temperature of the water when the amount of heat energy supplied to it goes above 42 kJ.

[3 marks]

0	2	.	3
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Determine the total amount of energy required to evaporate this entire mass of water from an initial temperature of $100 \text{ } ^\circ\text{C}$.

The specific latent heat of vaporisation of water is $2.5 \times 10^6 \text{ J/kg}$.

Energy = _____ J

[2 marks]