Advanced Higher Maths
SQA 2016 Paper
Question 16

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Maths.scot

A beaker of liquid was placed in a fridge.

The rate of cooling is given by

$$\frac{dT}{dt} = -k\left(T - T_F\right), \quad k > 0,$$

where T_F is the constant temperature in the fridge and T is the temperature of the liquid at time t.

- The constant temperature in the fridge is 4 °C.
- When first placed in the fridge, the temperature of the liquid was 25 °C.
- At 12 noon, the temperature of the liquid was 9·8 °C.
- At 12:15 pm, the temperature of the liquid had dropped to 6·5 °C.

At what time, to the nearest minute, was the liquid placed in the fridge? **9**

Answer:

11:37 am