11. The number of electric vehicles worldwide can be modelled by

$$N = 6.8e^{kt}$$

where:

- N is the estimated number of vehicles in millions
- t is the number of years since the end of 2020
- k is a constant.

(a) Use the model to estimate the number of electric vehicles worldwide at the end of 2020. **1**

At the end of 2030, it is estimated there will be 125 million electric vehicles worldwide.

(b) Determine the value of k. **4**