A supermarket has been investigating how long customers have to wait at the checkout.

During any half hour period, the percentage, $P\%$, of customers who wait for less than t minutes, can be modelled by

$$P = 100\left(1 - e^{kt}\right), \text{ where } k \text{ is a constant.}$$

(a) If 50% of customers wait for less than 3 minutes, determine the value of k.   **4**

(b) Calculate the percentage of customers who wait for 5 minutes or longer.   **2**

Answers:

(a) $k = -0 \cdot 231$

(b)   31.5%