3. Customers in a shop have to queue to pay.

The partially completed table below and partially completed histogram opposite, give information about the time, x minutes, spent in the queue by each of 112 customers one day.

Time in queue (x minutes)	Frequency
1–2	64
2–3	
3–4	13
4–6	
6–8	3

No customer spent less than 1 minute or longer than 8 minutes in the queue.

(a) Complete the table.

(2)

(b) Complete the histogram.

(2)

Ting decides to model the **frequency density** for these 112 customers by a curve with equation

$$y = \frac{k}{x^2} \qquad 1 \leqslant x \leqslant 8$$

where k is a constant.

(c) Find the value of k

(3)

Question 3 continued