

Histograms

(a)

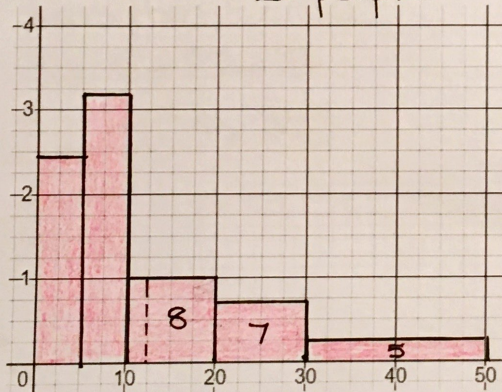
The distance travelled to work by 50 employees is recorded in a grouped frequency table.

(a) Calculate the frequency density for each class.

Distance (km)	Frequency	Class Width	Freq. Dens.
$0 < d \leq 5$	12	5	2.4
$5 < h \leq 10$	16	5	3.2
$10 < h \leq 20$	10	10	1
$20 < h \leq 30$	7	10	0.7
$30 < h \leq 50$	5	20	0.25

(b) Plot a histogram.

(c) Use your histogram to estimate the number of people who travel at least 12 km to work.



(b)

The house prices of 100 houses in a village are recorded in a grouped frequency table.

(a) Use the information in the table to calculate frequency densities and plot a histogram.

(b) Use your histogram to estimate the percentage of houses that cost less than £270 000.

House Price (£ thousands)	Frequency
$0 < p \leq 100$	6
$100 < p \leq 200$	22
$200 < p \leq 250$	18
$250 < p \leq 300$	35
$300 < p \leq 500$	15
$500 < p \leq 1000$	4

(c)

The time taken, in minutes, by 50 students to solve a maths puzzle is recorded in a grouped frequency table.

(a) Plot a histogram to represent this data.

(b) Use your histogram to find the median time taken.

Time Taken (minutes)	Frequency
$0 < t \leq 2$	4
$2 < t \leq 4$	7
$4 < t \leq 5$	10
$5 < t \leq 6$	12
$6 < t \leq 7$	11
$7 < t \leq 12$	6

(b) House Price Freq
Dens.

$0 < p \leq 100$	0.06
$100 < p \leq 200$	0.22
$200 < p \leq 300$	0.36
$250 < p \leq 300$	0.7
$300 < p \leq 500$	0.075
$500 < p \leq 1000$	0.008

$$\begin{aligned}
 &\text{Less than } \pounds 270,00 \\
 &= 6 + 22 + 18 \\
 &\quad + (0.4 \times 35) \\
 &=
 \end{aligned}$$



(c)

Time Taken	Freq Dens.
$0 < t \leq 2$	2
$2 < t \leq 4$	3.5
$4 < t \leq 5$	10
$5 < t \leq 6$	12
$6 < t \leq 7$	11
$7 < t \leq 12$	1.2

Median

$$= \left(\frac{4}{12} \times 12 \right) + 5$$

$$= 5.3$$

