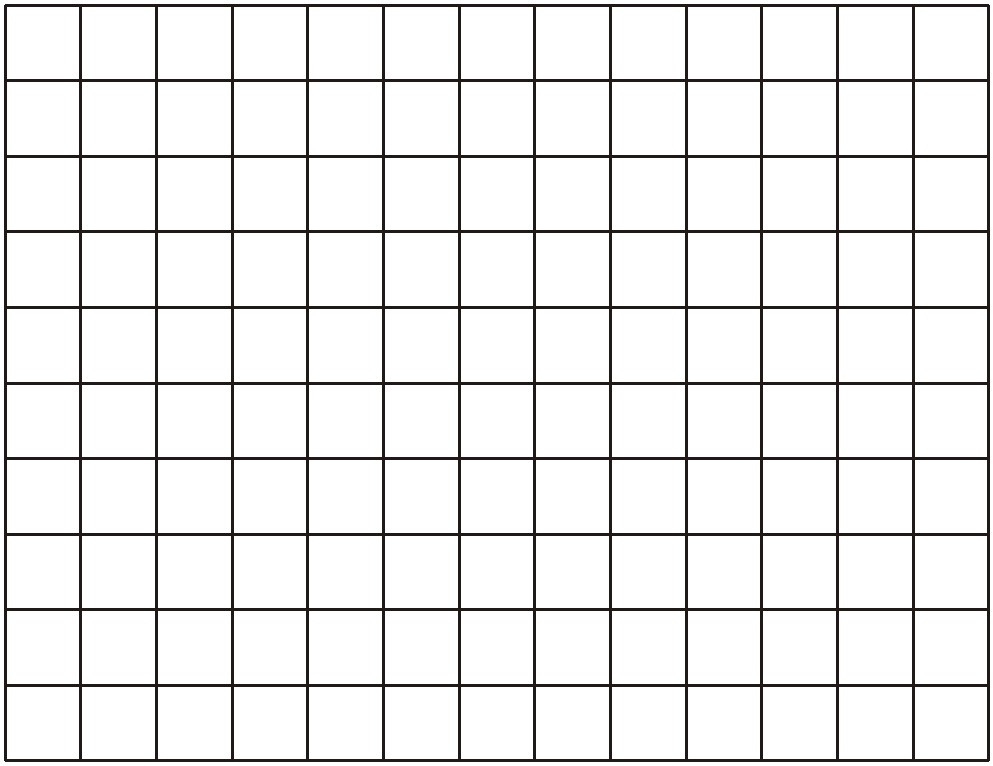
1. The following table shows the age distribution of teachers who smoke at *Laughlin High School.*

Ages	Number of smokers
$20 \leq x < 30$	5
$30 \leq x < 40$	4
$40 \leq x < 50$	3
$50 \leq x < 60$	2
$60 \leq x < 70$	3

(a) Calculate an estimate of the mean smoking age.

(b) On the following grid, construct a histogram to represent this data.



Working:

Answers:

(a) ……..

(Total 4 marks)

2. David looked at a passage from a book. He recorded the number of words in each sentence as shown in the following frequency table.

Class interval (number of words)	Frequency f
1–5	16
6–10	28
11–15	26
16–20	14
21–25	10
26–30	3
31–35	1
36–40	0
41–45	2

(a) Find the class interval in which the median lies.

(b) Estimate, **correct to the nearest whole number**, the mean number of words in a sentence.

Working:

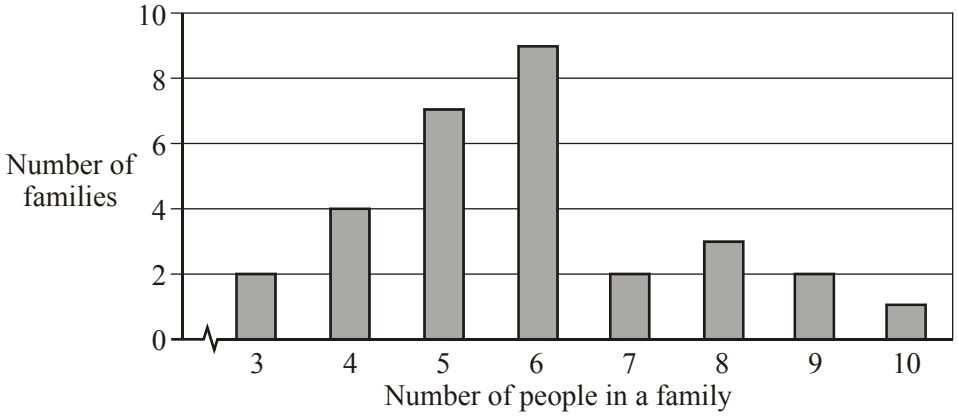
Answers:

(a) ……..

(b) ……..

(Total 4 marks)

3. The bar chart below shows the number of people in a selection of families.



(a) How many families are represented?

(b) Write down the mode of the distribution.

(c) Find, correct to the nearest whole number, the mean number of people in a family.

Working:

Answers:

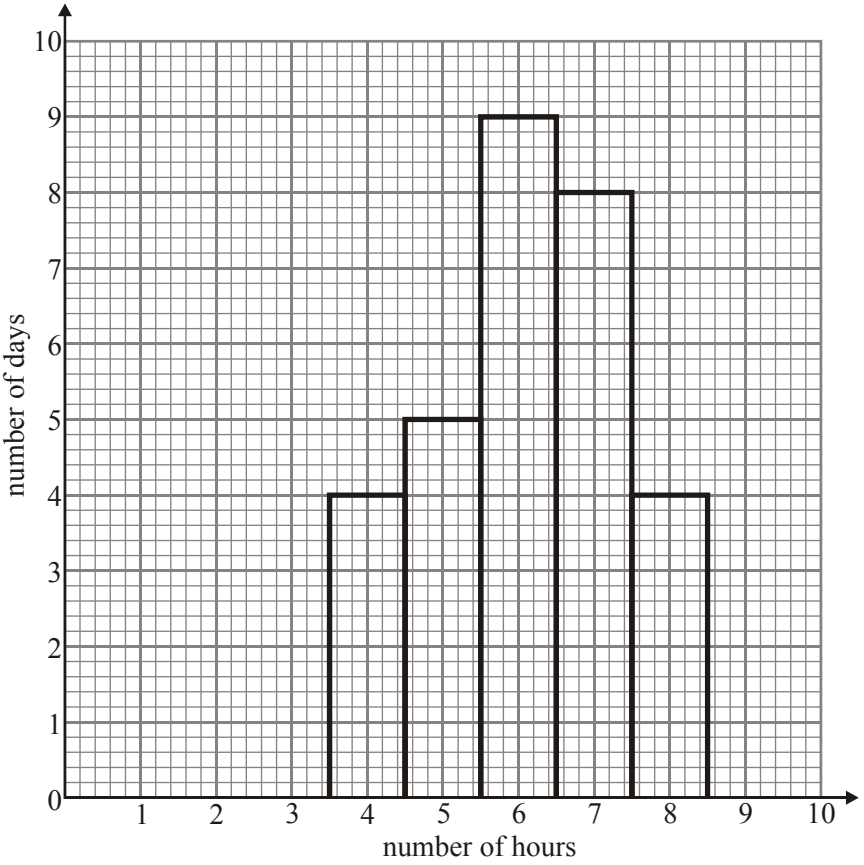
(a) .....

(b) .....

(c) .....

(Total 4 marks)

4. The number of hours that a professional footballer trains each day in the month of June is represented in the following histogram.



(a) Write down the modal number of hours trained each day.

(b) Calculate the mean number of hours he trains each day.

Working:

Answers:

(a) .....

(b) .....

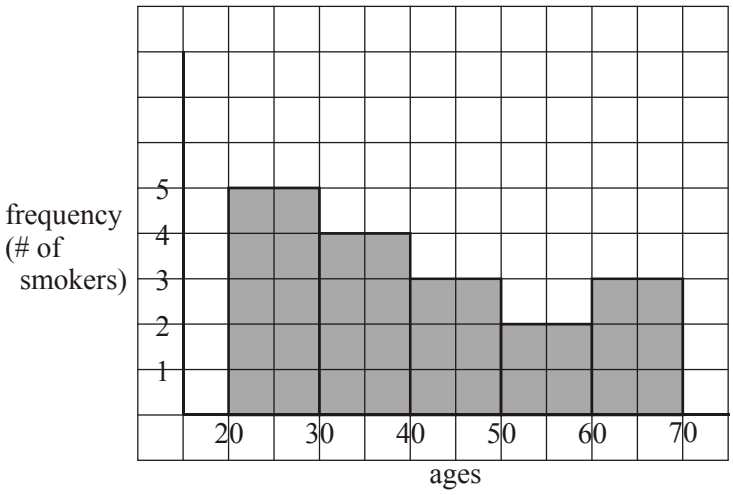
(Total 8 marks)

1. (a) mean = $\frac{(25)5 + (35)4 + (45)3 + (55)2 + (65)3}{17}$ (M1)

Note: *Award (M1) for using mid-interval values.*

mean = 41.5 (A1)

(b)



(A2)

Note: *Award (A1) for correct intervals, (A1) for correct bar lengths*

[4]

2. (a) Interval 11–15 (A1)

(b) Mid-intervals 3, 8, 13, 18 ... (M1)

Note: *Award (M1) for all correct numbers.*

$\Sigma xf = 48 + 224 + 338 + ...$ (M1)

Note: *Award (M1) for attempt to obtain sum.*

Mean = 13 (A1)

[4]

3. (a) 30 (A1)

(b) 6 (A1)

(c) $\frac{1}{30}((3 \times 2) + (4 \times 4) + ... + (10 \times 1)) = 5.9$ (M1)

= 6 (nearest whole number) (A1)

[4]

4. (a) 6 hours (accept (5.5–6.5)) (A2) (C2)

(b) $\dfrac{(4\times 4+5\times 5+6\times 9+7\times 8+8\times 4)}{30}$ (M1)(A2)(A1)

$= \dfrac{183}{30}$

$= 6.1$ (A2) (C6)

Note: *Award (M1) for method, (A2) for all 5 terms in numerator correct.*
((A1) for 3 or 4 terms in the numerator correct), (A1) for denominator.

[8]