Foundation tier unit 7 check in test

Calculator

Q1. Here is the number of goals a hockey team scored in each of 10 matches.

   3   4   3   2   5   3   5   6   2   4

   Find the median.

Q2. Use the data in question 1 to find the mode.

Q3. Yan recorded the ages, in years, of a sample of people at a fairground.
   He drew this stem and leaf diagram for his results.

```
1 | 5 5 7 7 7 7 9
2 | 0 3 7 8 8
3 | 4 6 7 7
4 | 2 5 9
5 | 0 5
```
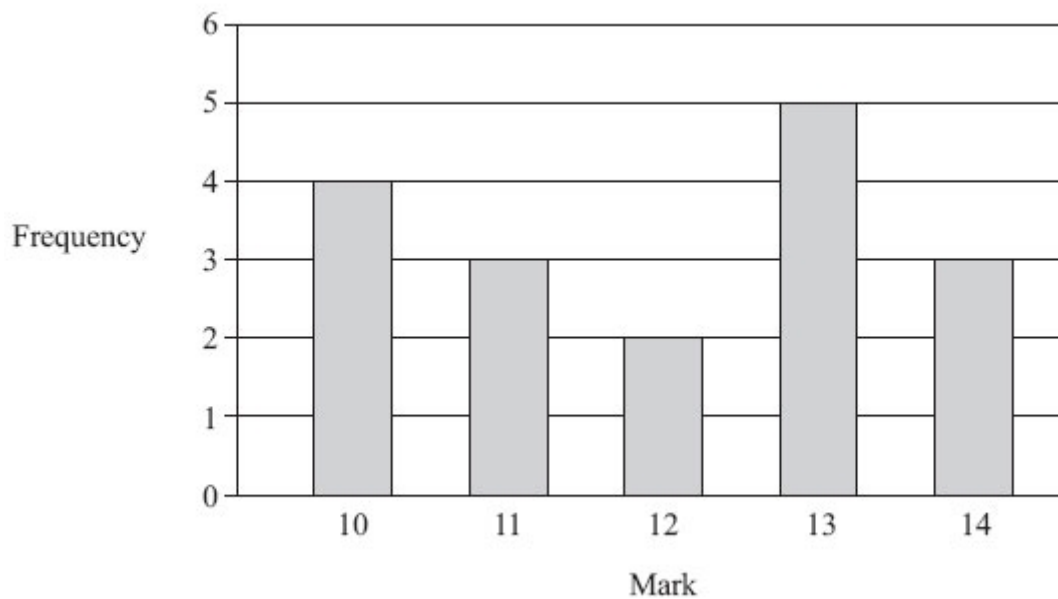
Key:

1|5 represents 15 years of age

   Find the range.

Q4. Ross rolled an ordinary dice 30 times.
   The frequency table gives information about his results.

Score	Frequency
1	7
2	5
3	4
4	4
5	6
6	4

   Find the median

Q5. Mrs Smith gave her students a history test.
The bar chart shows information about the students' marks.

Work out the mean.

[Q5–6 linked]
Q6. The table shows some information about the foot lengths of 40 adults.

Foot length (f cm)	Number of adults
$16 \leqslant f < 18$	3
$18 \leqslant f < 20$	6
$20 \leqslant f < 22$	10
$22 \leqslant f < 24$	12
$24 \leqslant f < 26$	9

Write down the modal class interval.

Q7. Use the table in question 5 to calculate an estimate for the mean foot length.

Q8. Tendai is doing a survey to find out how often people travel by bus.
She is going to sample 50 people in her town.

Choose the statement that describes the best way of selecting her sample.

A   Choose 50 people leaving the local railway station.
B   Choose 50 people waiting at local bus stops.
C   Choose 50 people from the electoral roll.
D   Choose 50 people in the local shopping centre.

Q9. The table shows some data about the heights of 25 students in a class.

	Boys	Girls
Mean	170 cm	164 cm
Median	170 cm	164 cm
Range	27 cm	31 cm

Use the data to compare the heights of the boys with the heights of the girls.

Q10. John is training to run in a 100 m competition. Here are his times.

10.3   11.5   11.6   11.4   11.3   11.2   11.7   19.3   10.3

Which measure of average would you use to for John's times? Give a reason for your choice.

Topics listed in objectives

- Specify the problem and:
  - plan an investigation;
  - decide what data to collect and what statistical analysis is needed;
  - consider fairness;
- Recognise types of data: primary secondary, quantitative and qualitative;
- Identify which primary data they need to collect and in what format, including grouped data;
- Collect data from a variety of suitable primary and secondary sources;
- Understand how sources of data may be biased and explain why a sample may not be representative of a whole population;
- Understand sample and population.
- Calculate the mean, mode, median and range for discrete data;
- Interpret and find a range of averages as follows:
  - median, mean and range from a (discrete) frequency table;
  - range, modal class, interval containing the median, and estimate of the mean from a grouped data frequency table;
  - mode and range from a bar chart;
  - median, mode and range from stem and leaf diagrams;
  - mean from a bar chart;
- Understand that the expression 'estimate' will be used where appropriate, when finding the mean of grouped data using mid-interval values;
- Compare the mean, median, mode and range (as appropriate) of two distributions using bar charts, dual bar charts, pictograms and back-to-back stem and leaf;
- Recognise the advantages and disadvantages between measures of average.

Answers

Q1.   3.5
Q2.   3
Q3.   40
Q4.   3
Q5.   12
Q6. $22 \le f < 24$
Q7.   21.9
Q8.   C
Q9.   The boys have a mean and mode of 170 cm and the girls a mean of and mode 164 cm, so the boys are taller on average and the boys have a range of 27 cm and the girls a range of 31 cm so the boys' heights are less spread out.
Q10.   Median: it doesn't take into account the extreme value of 19.3 s.