Statistics: 10 practice questions

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Name: _____ Date: _____

Attempt all questions and show your working. Suggested time: 15 to 20 minutes.

Section A: Consolidating (Questions 1-4)

Question 1

For each set of data, state whether it is categorical or numerical. If it is numerical, also state whether it is discrete or continuous.

(a) The number of siblings each student in a class has

(b) The favourite colour of each student in a class

(c) The time taken by each runner to finish a 5 km fun run

(d) The T-shirt size (S, M, L or XL) ordered by each member of a netball club

Question 2

Name the most suitable type of display for each set of data.

(a) The maximum temperature in a town each day for a month

(b) The favourite fruit of 30 students, chosen from apple, banana, mango and orange

(c) The heights, in centimetres, of 50 students

(d) The number of hours 20 students studied for a test and the score each student got on the test

Question 3

The stem-and-leaf plot shows the ages of 15 people in a fitness class. Key: 3 mid 4 means 34 years.

Stem	Leaf
1	8 9
2	2 5 5 7
3	0 1 4 8
4	2 5 6

5	1 3

Find:

(a) the youngest and the oldest age

(b) the range

(c) the median age

(d) the mode

Question 4

A column graph shows how many Year 9 students chose each elective subject. The heights of the columns are: Art 24, Drama 18, Music 12 and Woodwork 26.

(a) How many students are shown on the graph altogether?

(b) What percentage of these students chose Music?

(c) How many more students chose Woodwork than Drama?

Section B: Standard (Questions 5-10)

Question 5

The heights of 40 students were measured and grouped into this frequency table, which was then used to draw a histogram. The height is h cm.

Height (cm)	150 ≤ h < 155	155 ≤ h < 160	160 ≤ h < 165	165 ≤ h < 170	170 ≤ h < 175
Frequency	3	7	12	10	8

(a) Which class is the modal class?

(b) What percentage of the students are at least 165 cm tall?

(c) Which class contains the median height? Explain how you know.

(d) Explain why a histogram, rather than a column graph with gaps between the columns, is used for this data.

Question 6

A dot plot shows the number of goals a soccer team scored in each of its 20 matches. The number of dots above each value is shown in the table.

0	1	2	3	4	5

Goals scored						
Number of dots	3	6	5	4	1	1

Find:

(a) the mode

(b) the median

(c) the mean

(d) the range

Question 7

The back-to-back stem-and-leaf plot shows the test scores (out of 100) of two classes, each with 11 students. Class A's leaves are on the left and are read from the stem outwards. Key: 2 mid 5 mid 6 means 52 for Class A and 56 for Class B.

Class A	Stem	Class B
	4	5
8 2	5	6
7 4 1	6	3 8
8 5 3 0	7	4 7 9
4	8	2 5 8
1	9	6

(a) Find the median score for each class.

(b) Find the range of scores for each class.

(c) Which class did better overall? Give a reason.

(d) Which class had more consistent scores? Give a reason.

Question 8

A café recorded the number of customers it had each day for 60 days. The box plot of the data has:

minimum 40, lower quartile 55, median 68, upper quartile 80, maximum 110.

(a) Find the range.

(b) Find the interquartile range.

(c) On about what percentage of the days did the café have more than 80 customers?

(d) On about how many of the 60 days did the café have between 55 and 68 customers?

Question 9

The number of minutes 11 students spent on homework one night was:

24, 15, 31, 18, 12, 26, 22, 40, 17, 29, 21

(a) Find the five-number summary. (Do not include the median in either half when finding the quartiles.)

(b) Find the interquartile range.

(c) A box plot is drawn from this data. Which whisker is longer, the left (lower) whisker or the right (upper) whisker? Show how you know.

Question 10

In a survey, 72 people were asked to name their favourite season.

Season	Summer	Autumn	Winter	Spring
Number of people	30	12	8	22

(a) A pie chart is to be drawn. Calculate the angle of the sector for each season.

(b) Explain why a pie chart is a suitable display for this data.

Statistics: answers

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Question 1

Answer: (a) Numerical, discrete (b) Categorical (c) Numerical, continuous (d) Categorical (it is ordered, so ordinal is also correct)

Question 2

Answer: (a) Line graph (b) Column graph (bar graph); a pie chart is also acceptable (c) Histogram (a stem-and-leaf plot, dot plot or box plot is also acceptable) (d) Scatter plot

Question 3

Answer: (a) Youngest 18, oldest 53 (b) 35 years (c) 31 years (the 8th value) (d) 25 years

Question 4

Answer: (a) 80 (b) 15% (12/80 × 100) (c) 8

Question 5

Answer: (a) $160 \le h < 165$ (b) 45% (18/40 × 100) (c) $160 \le h < 165$: the median is the average of the 20th and 21st heights, and the first two classes hold only 10 students while the first three hold 22 (d) Height is continuous numerical data, so the classes join with no gaps.

Question 6

Answer: (a) 1 goal (b) 2 goals (c) 1.85 goals (37/20) (d) 5 goals

Question 7

Answer: (a) Class A 70, Class B 77 (b) Class A 39, Class B 51 (c) Class B, because its median (77) is higher (d) Class A, because its range (39) is smaller

Question 8

Answer: (a) 70 (b) 25 (80 - 55) (c) About 25% (d) About 15 days (25% of 60)

Question 9

Answer: (a) Minimum 12, $Q_1 = 17$, median 22, $Q_3 = 29$, maximum 40 (b) 12 (c) The right (upper) whisker: it runs from 29 to 40 (11 minutes), while the left runs from 12 to 17 (5 minutes)

Question 10

Answer: (a) Summer 150°, Autumn 60°, Winter 40°, Spring 110° (each person is 5°) (b) The data is categorical and the pie chart shows each season as a part of the whole group of 72 people.