Comparing data sets: 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

Each table shows a data set as it would appear on a dot plot. Describe the shape of each one as symmetric, positively skewed, negatively skewed or bi-modal.

(a)

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

(b)

Value	1	2	3	4	5	6	7
Frequency	9	7	4	2	1	1	1

(c)

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

(d)

Value	1	2	3	4	5	6	7
Frequency	1	1	2	3	5	8	9

Question 2

For the data set 12, 15, 9, 25, 15, 18, 11, find:

(a) the mean

(b) the median

(c) the mode

(d) the range

Question 3

Which term (symmetric, positively skewed, negatively skewed or bi-modal) best describes each distribution?

(a) Scores on a very easy test: most students scored high marks and only a few scored low marks.

(b) Weekly incomes in a town: most people earn low or middle amounts and a few earn very large amounts.

(c) The times customers arrive at a café during the day, which is busy at breakfast and again at lunch, and quiet in between.

(d) The total shown when two dice are rolled many times, where 7 is most common and totals further from 7 are less common, by equal amounts on each side.

Question 4

The stem-and-leaf plot shows the ages of people at a work meeting. Key: 4 mid 2 means 42 years.

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

(a) How many people were at the meeting?

(b) Find the median age.

(c) Find the range of the ages.

Section B: Standard (Questions 5-10)

Question 5

The back-to-back stem-and-leaf plot shows the test scores of two classes. Key: 7 mid 2 means a score of 72 for either class.

Class A leaves	Stem	Class B leaves

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

(a) How many students are in each class?

(b) Find the median score for each class.

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

(d) Which class performed better overall? Use your answers to explain.

Question 6

Two basketball players recorded their points in their last six games.

Ari: 12, 15, 18, 14, 16, 15

Ben: 4, 28, 9, 25, 6, 18

(a) Find the mean number of points for each player.

(b) Find the range for each player.

(c) The coach needs a player who scores consistently. Who should she choose? Explain.

Question 7

Two groups of Year 9 students recorded how many hours of screen time they had on a Saturday. The results are shown as a parallel frequency table.

Hours	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Group X	1	4	7	5	3	2	1	1	0
Group Y	0	1	1	2	3	4	6	5	2

(a) How many students are in each group?

(b) Describe the shape of each distribution.

(c) Find the median number of hours for each group.

(d) Compare the two groups in one sentence.

Question 8

The times taken by 25 people to complete a puzzle are shown in a grouped frequency table.

Time (minutes)	Frequency
0 to less than 5	2
5 to less than 10	9
10 to less than 15	3
15 to less than 20	2
20 to less than 25	8
25 to less than 30	1

(a) Describe the shape of the distribution.

(b) Suggest a reason why the data might have this shape.

Question 9

The prices of the last seven houses sold in two suburbs are shown, in thousands of dollars.

Suburb P: 650, 700, 720, 750, 780, 800, 2950

Suburb Q: 700, 720, 760, 790, 810, 830, 850

(a) Find the mean and median price for each suburb.

(b) Describe the shape of the Suburb P data.

(c) Which measure of centre better describes a typical house price in Suburb P? Explain.

(d) Using your answer to (c), in which suburb is a typical house more expensive?

Question 10

The daily maximum temperatures (in °C) for one week in two cities are shown.

Hobart: 14, 17, 15, 19, 16, 13, 18

Darwin: 31, 32, 33, 32, 31, 34, 31

(a) Find the mean and range for each city.

(b) Compare the two data sets, referring to both centre and spread.

Comparing data sets: answers

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Question 1

Answer: (a) symmetric (b) positively skewed (c) bi-modal (d) negatively skewed

Question 2

Answer: (a) 15 (105 ÷ 7) (b) 15 (c) 15 (d) 16

Question 3

Answer: (a) negatively skewed (b) positively skewed (c) bi-modal (d) symmetric

Question 4

Answer: (a) 11 (b) 45 years (c) 30 years (61 - 31)

Question 5

Answer: (a) 11 in each class (b) Class A 70, Class B 62 (c) Class A 39 (91 - 52), Class B 43 (88 - 45) (d) Class A: its median is higher (70 compared with 62) and its scores are slightly less spread out.

Question 6

Answer: (a) both 15 (b) Ari 6, Ben 24 (c) Ari: both have the same mean, but Ari's range is much smaller, so his scores are more consistent.

Question 7

Answer: (a) 24 in each group (b) Group X is positively skewed; Group Y is negatively skewed. (c) Group X 2.5 hours, Group Y 6 hours (d) Group Y typically had much more screen time than Group X (median 6 hours compared with 2.5 hours).

Question 8

Answer: (a) bi-modal (peaks at 5 to less than 10 and at 20 to less than 25 minutes) (b) For example: there are two groups of people, such as those who had done this type of puzzle before (fast) and those who had not (slow).

Question 9

Answer: (a) P: mean $1 050 000, median $750 000; Q: mean $780 000, median $790 000 (b) positively skewed (one very high price, an outlier) (c) The median, because the one very expensive house pulls the mean up above six of the seven prices. (d) Suburb Q (median $790 000 compared with $750 000)

Question 10

Answer: (a) Hobart: mean 16°C, range 6°C; Darwin: mean 32°C, range 3°C (b) Darwin was much hotter on average (mean 16 degrees higher) and its temperatures were less spread out (range 3 compared with 6).