GRADE 7 · UNIT 13 · PRACTICE TEST

Numerical and Categorical Data

24 points

Name_____
Date_____
Period_____

Show your work for problems that require calculations. Each numbered question or lettered part is worth 1 point.

Measures of center and variation

8 points

1. Nine students timed how long a project took, in minutes: 45, 35, 135, 50, 42, 45, 55, 40, 48

a. Find the mean. *1 pt*

b. Find the median. *1 pt*

2. The ages of eight cousins, in years: 12, 6, 20, 8, 15, 3, 17, 11. Find the interquartile range. *1 pt*

3. The stem-and-leaf plot shows nine quiz scores.

Quiz scores

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

Key: 8 | 5 means 85

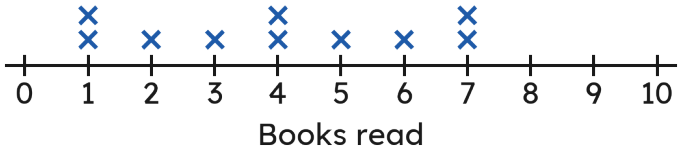
a. Which score is an outlier? *1 pt*

b. The outlier is removed. Find the range of the scores that are left. *1 pt*

4. The prices of nine houses on one street, in thousands of dollars: 180, 185, 190, 195, 200, 205, 210, 215, 960. A website wants one number for the typical price. Which should it use, and why? *1 pt*

- ○ A. The mean, because it uses every price.
- ○ B. The median, because one very high price pulls the mean up.
- ○ C. The median, because the median is always the better measure.
- ○ D. The mean, because an outlier does not change it.

5. The line plot shows how many books each of ten students read. The data have no outlier.

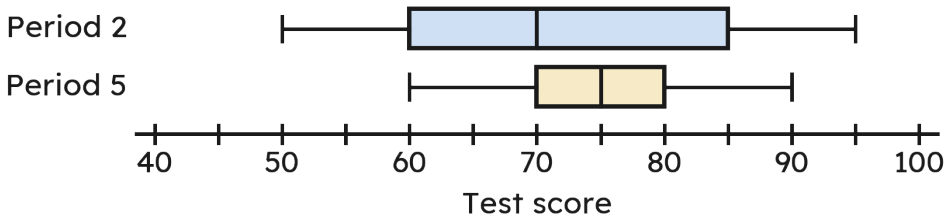


a. Find the mean. *1 pt*

b. Find the range. *1 pt*

Comparing two groups *8 points*

6. The box plots show the test scores of two class periods.



a. How much greater is Period 5's median than Period 2's? *1 pt*

b. Find the interquartile range of Period 2. *1 pt*

c. Find the interquartile range of Period 5. *1 pt*

7. The two-sided stem-and-leaf plot shows how long nine bus riders and nine walkers take to get to school, in minutes.

Minutes to get to school

Bus riders	Stem	Walkers
	0	8
8 5 2	1	0 1 3 4 5 7 9
7 4 4 1	2	2
3 0	3	

Key for Bus riders: 2 | 1 means 12
Key for Walkers: 0 | 8 means 8

a. Find the median for the bus riders. *1 pt*

b. Find the median for the walkers. *1 pt*

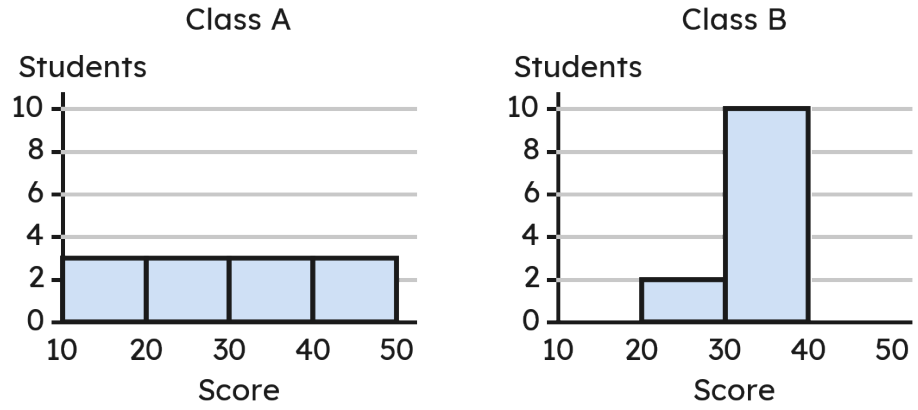
c. Which statement do the data support? *1 pt*

- ○ A. Bus riders typically take longer, and their times vary more.
- ○ B. Walkers typically take longer, and their times vary more.
- ○ C. Bus riders typically take longer, and walkers' times vary more.
- ○ D. Every bus rider takes longer than every walker.

8. Two teams' goals in seven games. Team A: 2, 3, 3, 4, 5, 5, 6 Team B: 1, 2, 3, 3, 4, 4, 12. A coach wants to compare how many goals each team typically scores and how consistent each team is. Which measures should be used? *1 pt*

- ○ A. the mean and the range
- ○ B. the mean and the interquartile range
- ○ C. the median and the range
- ○ D. the median and the interquartile range

9. The histograms show the quiz scores of two classes of twelve students. Which class's scores vary more, and why? *1 pt*



- ○ A. Class B, because its bars have different heights.
- ○ B. Class B, because its tallest bar is taller.
- ○ C. Class A, because its scores are spread across more of the scale.
- ○ D. They vary the same, because both classes have twelve students.

Choosing and creating displays

8 points

10. Which of these are categorical data? Select all. *1 pt*

- ☐ A. eye color
- ☐ B. height in inches
- ☐ C. favorite sport
- ☐ D. number of siblings
- ☐ E. kind of pet

11. A teacher asks 28 students to name their favorite lunch out of five lunches, and wants to compare how many chose each. Which display fits? *1 pt*

- ○ A. a histogram
- ○ B. a box plot
- ○ C. a stem-and-leaf plot
- ○ D. a bar chart

12. A nurse measures the heights of 400 students and wants to show the shape of the data. Which display fits? *1 pt*

- ○ A. a bar chart
- ○ B. a histogram
- ○ C. a circle graph
- ○ D. a stem-and-leaf plot

13. Which of these can be read from a box plot? *1 pt*

- ○ A. the median
- ○ B. the mean
- ○ C. how many values there are
- ○ D. the exact value of every data point

14. Twelve quiz scores: 73, 58, 94, 61, 81, 70, 52, 86, 67, 75, 64, 78. Dee is making a histogram with the intervals 50–59, 60–69, 70–79, 80–89 and 90–99.

a. How tall is the bar for 60–69? *1 pt*

b. How tall is the bar for 70–79? *1 pt*

15. The number of pages in eleven chapters of a book: 12, 4, 20, 9, 15, 7, 21, 6, 18, 10, 13. Sam is drawing a box plot.

a. Find the first quartile. *1 pt*

b. Find the third quartile. *1 pt*