Algebra Chapter 11 Review

Find the mean, median, and mode of the data set. Which measure of center best represents the data?

1. 1, 8, 7, 3, 6, 7, 5, 10, 5, 4
2. 12, 20, 13, 10, 12, 12, 14, 15, 18, 19

Use the box-and-whisker plot to find the given measure.

3. least value
4. first quartile
5. median
6. range
7. greatest value
8. third quartile

Make a box-and-whisker plot that represents the data.

9. 30, 36, 40, 28, 32, 48, 42
10. 10, 9, 7, 8, 3, 7, 9, 2, 8, 7, 9

11. The table shows the test scores for eight honors geometry students on an exam.

   a. Identify the outlier. How does the outlier affect the mean, median, and mode?

   b. Describe one potential explanation for the outlier.

<table>
<thead>
<tr>
<th>Test Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>45</td>
</tr>
<tr>
<td>78</td>
</tr>
<tr>
<td>83</td>
</tr>
<tr>
<td>85</td>
</tr>
<tr>
<td>84</td>
</tr>
<tr>
<td>90</td>
</tr>
<tr>
<td>80</td>
</tr>
<tr>
<td>86</td>
</tr>
</tbody>
</table>

Find the range and standard deviation of each data set. Then compare your results.

12. Highest test scores by class
   - Period 2: 92, 95, 87, 90, 92, 93, 88
   - Period 4: 100, 88, 83, 89, 92, 91, 85

13. Height of 18-year old adults (in.)
   - Male: 70, 67, 72, 65, 69, 71, 73
   - Female: 64, 62, 65, 63, 67, 61, 70

Tell whether the data are qualitative or quantitative.

14. brands of athletic clothing
15. nations competing in the Olympics
16. monthly snowfall in inches
17. average temperatures in a city
Choose an appropriate data display for each situation. Explain your reasoning.

23. Plant growth over a six-month period

24. Test scores for all of Mrs. Rife's Algebra classes

25. Favorite video game of 8th graders

26. Your household budget breakdown
27. You conduct a survey that asks 253 students about whether they ride a bicycle to school. Use the results of the survey shown in the two-way table.

<table>
<thead>
<tr>
<th>Class</th>
<th>Ride Bike to School</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Freshman</td>
<td>54</td>
</tr>
<tr>
<td>Sophomore</td>
<td>5</td>
</tr>
</tbody>
</table>

a. What percent of bike riders are sophomores?
b. What percent of freshman do not ride their bike to school?
c. What percent of students ride a bicycle to school?
d. What percent of students surveyed are freshman?

28. The box and whisker plot shows the results of a survey of 130 girls that asked how many pairs of shoes they owned. About how many would you expect to have between 15 and 18 pairs of shoes?

Ch 11 Review Answers

1. a. mean: 5.6; median: 5.5; mode: 5 and 7 both appear twice.
   b. mean
2. a. mean: 14.5; median: 13.5; mode: 12
   b. median
3. 4
4. 8
5. 14
6. 14
7. 18
8. 16
9.
10.
11. a. 45; The outlier pulls the mean to the left, making it smaller. The median also increases, but the mode is not affected.
   b. *Sample answer:* That student did not study for the test. The measures of spread for the science data are larger than the measures of spread for the math data.
12. Period 2: range = 8, standard deviation = 2.6; Period 4: range = 17, standard deviation = 5.1; The measures of spread for Period 2 are smaller than the measures of spread for Period 4.

13. male: range = 8, standard deviation = 2.6; female: range = 9, standard deviation = 2.9; The measures of spread for female and male heights are similar.

14. qualitative 15. qualitative 16. quantitative 17. quantitative

18. $x = 3$ 19. $x = 19$

20. a. Student 1: slight skew right; Student 2: skew right  
   b. Student 2; smaller range  
   c. Student 1

21. a. [Table with data]

b. median and 5-number summary; The data is skewed right.

22. a.  

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>100</td>
<td>89</td>
<td>189</td>
</tr>
<tr>
<td>No</td>
<td>71</td>
<td>90</td>
<td>161</td>
</tr>
<tr>
<td>Total</td>
<td>171</td>
<td>179</td>
<td>350</td>
</tr>
</tbody>
</table>

b. $\frac{89}{189} = 47.1\%$

23. line graph, changes over time

24. histogram or box and whisker, This may have a wide range of values. Individual data is not needed.

25. bar graph, categorical data

26. circle graph, compares parts to the whole

27. a. 8% b. 57% c. 23% d. 50%

28. About 32-33 girls.