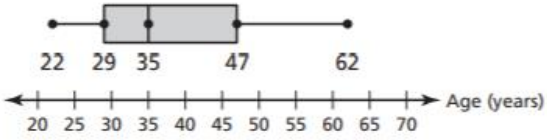
10.4 BOOKWORK ANWERS WITH WORK PG. 463-463 #5-17 ALL

5. Order the data. Find the median and the quartiles.

22 26 28 30 32 35 35 42 45 49 50 62

- 22: least value
- 28: first quartile, 29
- 35: median, 35
- 47: third quartile, 47
- 62: greatest value

Draw a box-and-whisker plot.

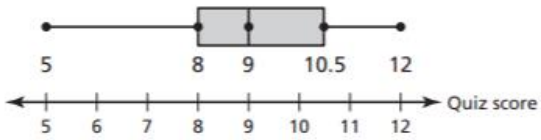


6. Order the data. Find the median and the quartiles.

5 7 8 8 8 9 9 9 10 10 11 12 12

- 5: least value
- 8: first quartile, 8
- 9: median
- 10.5: third quartile, 10.5
- 12: greatest value

Draw a box-and-whisker plot.

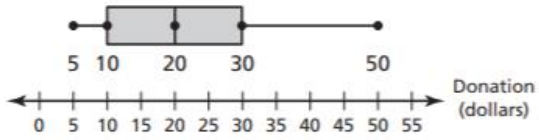


7. Order the data. Find the median and the quartiles.

5 5 10 10 15 15 20 20 25 30 30 35 50

- 5: least value
- 10: first quartile, 10
- 20: median
- 30: third quartile, 30
- 50: greatest value

Draw a box-and-whisker plot.



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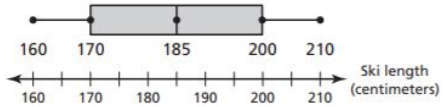
8. Order the data. Find the median and the quartiles.

160 160 165 175 175 180 190 190 195 205 205 210

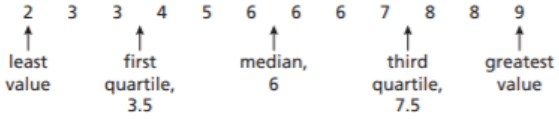
- 160: least value
- 165: first quartile, 170
- 180: median, 185
- 195: third quartile, 200
- 210: greatest value

Draw a box-and-whisker plot.

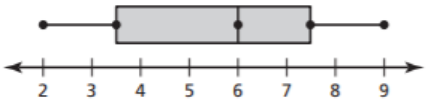


9. The first step in making a box-and-whisker plot is ordering the data. The data was not ordered before it was used to make a box-and-whisker plot.

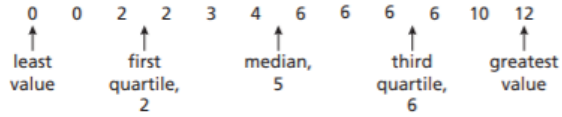
Order the data. Find the median and the quartiles.



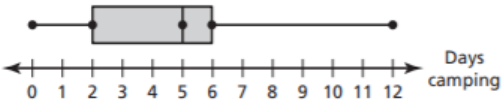
Draw a box-and whisker plot.



10. Order the data. Find the median and the quartiles.



Draw a box-and-whisker plot.



range: $12 - 0 = 12$

The range of the data is 12 days.

11. a. *Sample answer*: Because the median represents the middle of the data and 500 gallons is the median value, the fraction of the dunk tanks that require at least 500 gallons of water is about $\frac{1}{2}$.

b. The data is more spread out above the third quartile than below the first quartile because the right whisker is longer than the left whisker.

c. interquartile range = third quartile − first quartile

$= 600 - 450$

$= 150$

So, the middle half of the numbers of gallons varies by no more than 150 gallons.

12. a. *Sample answer*: The left whisker represents approximately $\frac{1}{4}$, or 25%, of the data. The box represents approximately $\frac{1}{2}$, or 50%, of the data.

So, the percent of the buildings that are no taller than 345 meters is 25% + 50%, or 75%.

b. There is more variability above 345 meters because the right whisker is longer than the left whisker.

c. interquartile range = third quartile − first quartile

$= 345 - 261$

$= 84$

So, the middle half of the heights varies by no more than 84 meters.

13. The left whisker is longer than the right whisker, and most of the data are on the right. So, the box-and-whisker plot is skewed left.

14. The whiskers are about the same length, and the median is in the middle of the box. So, the box-and-whisker plot is symmetric.

15. The whiskers are about the same length, and the median is in the middle of the box. So, the box-and-whisker plot is symmetric.

16. The right whisker is longer than the left whisker, and most of the data are on the left. So, the box-and-whisker plot is skewed right.

17. a. The left whisker for School 1 is longer than the right whisker, and most of the data are on the right.

So, the distribution for School 1 is skewed left.

The right whisker for School 2 is longer than the left whisker, and most of the data are on the left.

So, the distribution for School 2 is skewed right.

b. School 2; The times for School 2 are much more spread out than the times for School 1. Also, the middle half of the times for School 2 are more spread out than the middle half of the times for School 1.

c. School 1; School 1 has more data on the left than School 2. So, School 1 is more likely to have recess before lunch.