

**LESSON**  
**1-1**

**Practice C**

**Measures of Central Tendency and Variation**

**Write a data set to satisfy the given conditions.**

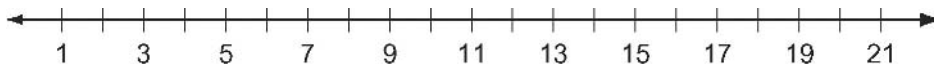
1. Median = 8; mode = 4

2. Mean = 10; median = 12

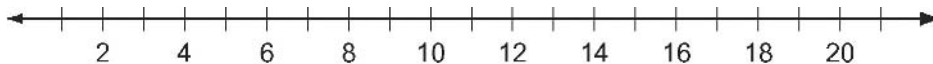
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**Make a box-and-whisker plot of the data. Find the interquartile range.**

3. 21, 20, 4, 5, 5, 20, 20, 13, 1, 1, 13, 7, 13, 17, 7, 17, 9, 9



4. 10, 16, 3, 18, 18, 10, 8, 2, 9, 3, 7, 7, 8, 8, 18, 13, 7, 13



**Find the variance and standard deviation.**

5. { 13, 7, 16, 22, 26, 11, 12, 19, 9 }

6. { 4, 7, 28, 6, 1, 1, 10, 15, 48, 3, 4, 5 }

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7. { 15, 5, 12, 8, 19, 11, 7, 10, 9, 13, 17, 5 }

8. { 37, 29, 33, 30, 23, 28, 20, 35, 19, 21 }

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**Solve.**

9. The probability distribution for the number of children per family in a particular suburb of Chicago is shown below.

Find the expected number of children per family in this region.

|   |      |      |      |      |
|---|------|------|------|------|
| <b>Number of Children, <math>n</math></b> | 1    | 2    | 3    | 4    |
| <b>Probability</b>                        | 0.27 | 0.28 | 0.35 | 0.10 |

10. A chemist weighs samples obtained from a production run. The weights of the samples are 13 g, 14 g, 65 g, 11 g, 15 g, 14 g, 14 g, 12 g, 13 g, 15 g, 14 g, and 12 g.

a. Find the mean of the data.

\_\_\_\_\_

b. Find the standard deviation.

\_\_\_\_\_

c. Identify any outliers.

\_\_\_\_\_

d. Describe how any outlier affects the mean and the standard deviation.

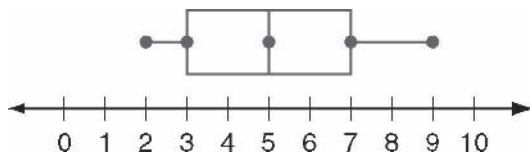
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# Answers for Unit 1

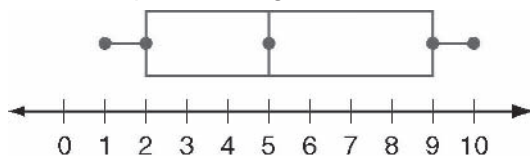
## 1-1 MEASURES OF CENTRAL TENDENCY AND VARIATION

### Practice A

- a. 5.25  
b. 5  
c. 2, 5
- a. 9  
b. 9.5  
c. 11
- 6.07
- 2.05
- Interquartile range is 4.



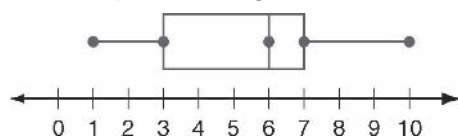
- Interquartile range is 7.



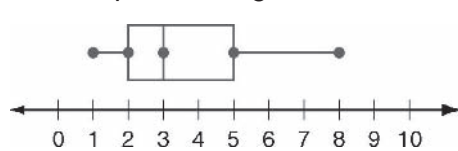
- 13; 3.6
- 4.7; 2.2

### Practice B

- a. 10.5  
b. 11.5  
c. None
- a. 8.6  
b. 9  
c. 9
- Interquartile range is 4.



- Interquartile range is 3.

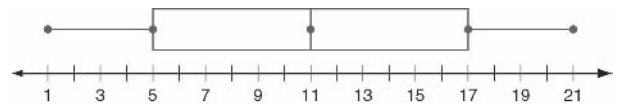


- 6.8; 2.6
- 278; 16.7

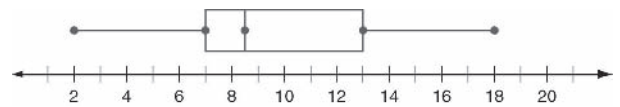
- 9.3; 3.0
- 8.4; 2.9
- 7.01
- a. 45.1  
b. 13.1  
c. 88  
d. The mean increases from  $\approx 41.2$  to  $\approx 45.1$ , and the standard deviation increases from  $\approx 2.1$  to  $\approx 13.1$ .

### Practice C

- Possible answer: {4, 4, 8, 9, 10}
- Possible answer: {3, 6, 12, 14, 15}
- Interquartile range is 12.



- Interquartile range is 6.



- 35.1; 5.9
- 176.2; 13.3
- 18.6; 4.3
- 37.6; 6.1
- 2.28

- a. 17.7  
b. 14.3  
c. 65  
d. The mean increases from  $\approx 13.4$  to  $\approx 17.7$ , and the standard deviation increases from  $\approx 1.2$  to  $\approx 14.3$ .

### Review for Mastery

- 5
- Expected value =  $x_1p_1 + x_2p_2 + x_3p_3 + x_4p_4 + x_5p_5$
- $\approx 6.9$
- 3
- 1, -2, 2, 0, -2, 2, 0, 1
- 1, 4, 4, 0, 4, 4, 0, 1
- 2.25
- 1.5

### Challenge

- Greater than; the sum is the same for both, and in the first case you divide by 94 rather than 100.