

## Measures of Spread Practice Worksheet

Name Key \_\_\_\_\_ Date \_\_\_\_\_

Find the mean absolute deviation of the data. Round to the nearest hundredth, if necessary.

1. 87, 75, 85, 77, 74, 82

$$\bar{x} = \frac{480}{6} = 80$$

$$MAD = \boxed{4.67}$$

$ 87-80  = 7$	$ 74-80  = 6$
$ 75-80  = 5$	$ 82-80  = 2$
$ 85-80  = 5$	
$ 77-80  = 3$	

$$MAD = \frac{7+5+5+3+6+2}{6} = \frac{28}{6}$$

2. 15, 17, 15, 17, 21, 17, 15, 23

$$\bar{x} = \frac{140}{8} = 17.5$$

$$MAD = \frac{2.5+0.5+2.5+0.5+3.5+0.5+2.5+5.5}{8}$$

$ 15-17.5  = 2.5$	$ 17-17.5  = 0.5$
$ 17-17.5  = 0.5$	$ 15-17.5  = 2.5$
$ 15-17.5  = 2.5$	$ 23-17.5  = 5.5$
$ 17-17.5  = 0.5$	
$ 21-17.5  = 3.5$	

$$MAD = \frac{18}{8}$$

$$MAD = \boxed{2.25}$$

3. The high and low temperatures for the last seven days are given.  
 High temperatures: 81°F, 78°F, 83°F, 89°F, 90°F, 87°F, 89°F  
 Low temperatures: 64°F, 53°F, 62°F, 66°F, 68°F, 69°F, 67°F

- a. Find the mean absolute deviation for the high temperatures. Round your answers to the nearest tenth.

$$\bar{x} = \frac{597}{7} = 85.3$$

$$MAD = \frac{4.3+7.3+2.3+3.7+4.7+1.7+3.7}{7}$$

$$= \frac{27.7}{7} = \boxed{4.0}$$

- b. Find the mean absolute deviation for the low temperatures. Round your answers to the nearest tenth.

$$\bar{x} = \frac{449}{7} = 64.1$$

$$MAD = \frac{0.1+11.1+2.1+1.9+3.9+4.9+2.9}{7}$$

$$= \frac{26.9}{7} = \boxed{3.8}$$

- c. Compare the spreads of data by using the mean absolute deviation for each. Round your answers to the nearest hundredth.

The MAD is greater for the high temperatures so the spread is greater.

4. The population densities (in people per square mile) of the 10 fastest-growing big cities in the United States in 2003 were 2696, 3649, 4563, 3380, 1183, 4180, 3459, 2396, 2764, and 2924.

a. Find the mean absolute deviation for the population densities of the 10 fastest-growing cities.

$$\bar{x} = \frac{31194}{10} = 3119.4$$

$$MAD = \frac{7268}{10} = \boxed{726.8}$$

$$MAD = (423.4 + 529.6 + 1443.6 + 260.6 + 1936.4 + 1060.6 + 339.6 + 723.4 + 355.4 + 195.4) / 10$$

Use the data to answer #'s 5 - 6.

0, 1, **3**, 3, 5, 5, 6, **11**, 14, 18

Data: 3, 5, 7, 3, 11, 18, 14, 0, 6, 5

5) Central Tendency

$$\text{Mean} = \frac{66}{10} = \boxed{6.6}$$

$$\text{Median} = \boxed{5}$$

$$\text{Mode} = \boxed{3 \text{ and } 5}$$

6) Variation

$$\text{Range} = \boxed{18}$$

$$\text{Interquartile Range} = 11 - 3 = \boxed{8}$$

$$\text{Mean Absolute Deviation} = \boxed{4.64}$$

$$\frac{(6.6 + 5.6 + 3.6 + 3.6 + 1.6 + 1.6 + 0.6 + 4.4 + 7.4 + 11.4)}{10}$$

$$= \frac{46.4}{10} = 4.64$$

Use the data to answer #'s 7 - 8

10, 15, **18**, 20, 40

Data: 20, 40, 10, 15, 18

7) Central Tendency

$$\text{Mean} = \frac{103}{5} = \boxed{20.6}$$

$$\text{Median} = \boxed{18}$$

$$\text{Mode} = \boxed{\text{No mode}}$$

8) Variation

$$\text{Range} = \boxed{30}$$

$$\text{Interquartile Range} = 30 - 12.5 = \boxed{17.5}$$

$$\text{Mean Absolute Deviation} = \boxed{7.76}$$

$$\frac{(10.6 + 5.6 + 2.6 + 0.6 + 19.4)}{5}$$

$$= \frac{38.8}{5} = 7.76$$