

Section 7.2 Mean, Median, and Mode

Section 7.2 Practice Exercises

1. (a) mean
(b) median
(c) mean
(d) mode
(e) weighted

$$3. \text{ Mean} = \frac{3+8+5+7+4+2+7+4}{8} = \frac{40}{8} = 5$$

$$5. \text{ Mean} = \frac{7+6+5+10+8+4+8+6+0}{9} = \frac{54}{9} = 6$$

$$7. \text{ Mean} = \frac{-22+(-14)+(-12)+(-16)+(-15)}{5} = -\frac{79}{5} = -15.8$$

$$9. \text{ Mean} = \frac{5.5+6.0+5.8+5.8+6.0+5.6}{6} = \frac{34.7}{6} \approx 5.8 \text{ hr}$$

$$11. \text{ (a)} \quad \begin{array}{r} 360 \\ 370 \\ 380 \\ 400 \\ 400 \\ + 470 \\ \hline 2380 \end{array} \quad \text{Mean} = \frac{2380}{6} \approx 397 \text{ Cal}$$

$$\text{ (b)} \quad \begin{array}{r} 310 \\ 325 \\ 350 \\ 390 \\ 440 \\ + 500 \\ \hline 2315 \end{array} \quad \text{Mean} = \frac{2315}{6} \approx 386 \text{ Cal}$$

$$\begin{array}{r} \text{(c)} \quad 397 \\ - 386 \\ \hline 11 \end{array}$$

There is an 11-Cal difference in the means.

$$\text{13. (a) Mean} = \frac{98 + 80 + 78 + 90}{4} = \frac{346}{4} = 86.5$$

Zach's mean test score was 86.5%.

$$\text{(b) Mean} = \frac{98 + 80 + 78 + 90 + 59}{5} = \frac{405}{5} = 81$$

The mean of all five tests was 81%.

(c) The low score of 59% decreased Zach's average by $86.5\% - 81\% = 5.5\%$.

15. Arrange the numbers in order from least to greatest.

13 14 16 17 19 20 22

Median = 17

17. Arrange the numbers in order from least to greatest.

100 109 110 111 118 123

$$\text{Median} = \frac{110 + 111}{2} = \frac{221}{2} = 110.5$$

19. Arrange the numbers in order from least to greatest.

-58 -55 -55 -50 -40 -40

$$\text{Median} = \frac{-55 + (-50)}{2} = -\frac{105}{2} = -52.5$$

21. Arrange the numbers in order from least to greatest.

$$\text{39. Mean} = \frac{312 + 225 + 221 + 256 + 308 + 280 + 147}{7} = \frac{1749}{7} \approx \$250$$

Arrange the numbers in order from least to greatest.

147 221 225 256 280 308 312

Median = \$256

There is no mode.

3.82 3.87 3.93 4.09 4.10

Median = 3.93 deaths per 1000

23. Arrange the numbers in order from least to greatest.

-8 -5 -3 -1 1 2 4 8

$$\text{Median} = \frac{-1 + 1}{2} = \frac{0}{2} = 0$$

25. Arrange the numbers in order from least to greatest.

42.4 45.4 46.5 48.3 51.7 56.4 71.2 86.8 91.6

Median = 51.7 million passengers

27. The data value 4 appears most often. The mode is 4.

29. There are 2 modes: -21 and -24.

31. No data value occurs most often. There is no mode.

33. \$300

35. 5.2%, 5.8%

$$\text{37. Mean} = \frac{92 + 98 + 43 + 98 + 97 + 85}{6} = \frac{513}{6} = 85.5\%$$

Arrange the numbers in order from least to greatest.

43 85 92 97 98 98

$$\text{Median} = \frac{92 + 97}{2} = \frac{189}{2} = 94.5\%$$

The median gave Jonathan a better overall score.

The median gave Nora a better overall score.

$$41. \text{ Mean} = \frac{850,000 + 835,000 + 839,000 + 829,000 + 850,000 + 850,000 + 850,000 + 847,000 + 1,850,000 + 825,000}{10}$$

$$= \frac{9,425,000}{10} = \$942,500$$

Arrange the numbers in order from least to greatest.

825,000 829,000 835,000 839,000 847,000 850,000 850,000 850,000 850,000 1,850,000

$$\text{Median} = \frac{847,000 + 850,000}{2} = \frac{1,697,000}{2} = \$848,500$$

Mode = \$850,000

43.

Grade	Credit-Hours	Product
B = 3.0	4	(3.0)(4) = 12.0
C = 2.0	1	(2.0)(1) = 2.0
A = 4.0	3	(4.0)(3) = 12.0
D = 1.0	5	(1.0)(5) = 5.0
Total:	13	31

$$\text{GPA} = \frac{31}{13} \approx 2.38$$

45.

Grade	Credit-Hours	Product
B+ = 3.5	3	(3.5)(3) = 10.5
C = 2.0	4	(2.0)(4) = 8.0
F = 0.0	1	(0.0)(1) = 0.0
A = 4.0	3	(4.0)(3) = 12.0
Total:	11	30.5

$$\text{GPA} = \frac{30.5}{11} \approx 2.77$$

47.

Grade	Credit-Hours	Product
A = 4.0	3	(4.0)(3) = 12.0
C = 2.0	1	(2.0)(1) = 2.0
B+ = 3.5	2	(3.5)(2) = 7.0
B = 3.0	4	(3.0)(3) = 12.0
Total:	10	33.0

$$\text{GPA} = \frac{33.0}{10} = 3.3$$

Elmer's GPA improved from 2.5 to 3.3.

49.

Number of Residents in Each House	Number of Houses	Product
1	3	(1)(3) = 3
2	9	(2)(9) = 18
3	10	(3)(10) = 30
4	9	(4)(9) = 36
5	6	(5)(6) = 30
Total:	37	117

$$\text{Mean} = \frac{117}{37} \approx 3.2$$

The mean number of residents is approximately 3.2.