Exercises

Find the mean, median, and mode of each data set. Which measures of central tendency best describe the data?

1. number of students per class:
   27 19 20 25 16 32 26 30
   mean on \( \text{any} \)
   median \( \text{any} \)
   mode \( \text{any} \)

2. temperatures (°F):
   67° 58° 67° 70° 68° 61° 65°
   mean on \( 65.6 \)
   median \( 67 °\)
   mode \( \text{any} \)

3. time spent studying (hr/week):
   10 8 11 14 10 12 10 9 8
   mean \( 10.2 \)
   median \( 10 \)
   mode \( \text{any} \)

Find the value of \( x \) so that the data set has the given mean.

4. 32, 48, 56, 40, \( x \); mean 42.6
   \( x = 37 \)

5. 1.2, 6.5, 3.3, 4.9, \( x \); mean 3.34
   \( x = 0.8 \)

6. 2.85, 12.6, 8.57, 10.1, \( x \); mean 9.024
   \( x = 11 \)

7. 112.5, 64.9, 45.2, 65.4, \( x \); mean 82.4
   \( x = 100 \)

9. The line plot at the right shows test scores Cheryl has received so far in the semester. Her goal is to have a 91% test average at the end of the semester. What does she need to score on her final test in order to achieve her goal? 95%.

Find the range and mean of each data set. Use your results to compare the two data sets.

10. Set M: 25, 36, 31, 28, 30
    Set N: 15, 22, 34, 18, 25
    \( M: \text{range 11; mean 30} \)
    \( N: \text{range 19; mean 22.8} \)

11. Set O: 2.6, 5.1, 3.7, 4.6, 3.2
    Set P: 4.8, 1.3, 6.7, 5.4
    \( O: \text{range 1.5; mean 3.88} \)
    \( P: \text{range 5.4; mean 4.41} \)

Find the mean, median, mode, and range of each data set if you perform the given operation on each data value.

12. 11, 14, 9, 7, 11; multiply by 2
    \( 20, 28, 18, 14 \)

13. 4, 6, 7, 3, 5, 8, 6.5, 5.8; add 7
    \( 11, 12.8, 12.8, 12.8, 2.7 \)

14. 127, 115, 135, 115, 142; divide by 5
    \( 25.4, 25.4, 25.4, 25.4 \)

15. 22.3, 18, 13.6, 15.2, 22.3; subtract 3.5
    \( 14.78, 14.5, 18.8, 8.7 \)

Exercises

Find the minimum, first quartile, median, third quartile, and maximum of each data set.

1. 72, 78, 61, 48, 59, 76, 65
   \( 68, 59, 75, 76, 78 \)

2. 11, 12, 8, 19, 16, 10, 14
   \( 8, 10, 12, 16, 19 \)

3. 3.6, 5.7, 8.3, 6.5, 2.9, 4.3, 0.1
   \( 2.9, 3.6, 5.1, 6.5, 8.3 \)

4. 155, 151, 158, 156, 155, 153, 158
   \( 151, 153, 155, 158 \)

Make a box-and-whisker plot to represent each set of data.

5. daily fair visitors: 2576, 3255, 1876, 2285, 3896, 4277, 990
   \( \) (no box-and-whisker plot indicated)

6. computer prices: $1499, $699, $999, $2999, $499, $4499, $3299
   \( \) (no box-and-whisker plot indicated)

7. lengths (in): 15, 21, 15, 17, 15, 14, 18
   \( \) (no box-and-whisker plot indicated)

8. Use the box-and-whisker plot below. What does it tell you about the number of hours each type of employee works for the company per week? Explain.

9. In a certain city with a working population of 10,500, 8925 people earn less than $75,000 per year. What is the percentile rank of someone who earns $75,000 per year?

   85
Problem

\[
\text{The odds that the color will be yellow are } \frac{1}{3} \text{ of } \frac{1}{2} = \frac{2}{3}.
\]

\text{Yellow outcomes: } 1, 2, 3

\text{Orange outcomes: } 4, 5, 6, 7, 8, 9, 10, 11, 12

\text{Green outcomes: } 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12

\text{The probability that \( \frac{2}{3} \) will be yellow is } \frac{2}{3}.

\text{The probability that \( \frac{2}{3} \) will be orange is } \frac{1}{3}.

\text{To find the probability, we use the formula:}

\[
\text{Probability} = \frac{\text{Number of favorable outcomes}}{\text{Total number of outcomes}}
\]

\text{The probability that \( \frac{2}{3} \) will be orange is } \frac{1}{3}.

\text{The probability that \( \frac{2}{3} \) will be green is } \frac{1}{3}.

\text{Therefore, the probability that \( \frac{2}{3} \) will be green is } \frac{1}{3}.

\text{The probability that \( \frac{2}{3} \) will be orange is } \frac{1}{3}.

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