The median hourly pay for Western Plumbing is greater than the median hourly pay for Jackson Electricians.

③ LESSON PRACTICE (24)

Answer Key

1. D
2. B
3. C
4. A
5. B
6. C
7. A, D
8. Sample answer: 5 and 13; Order the given values: 3, 6, 6, 7, 9, 11. These values have a median of 6.5, so if one of the new values is less than or equal to 6 and one is greater than or equal to 7, the median will not change. If the mean is 7.5, then $(3 + 6 + 6 + 7 + 9 + 11 + x + y) \div 8 = 7.5$. So, $3 + 6 + 6 + 7 + 9 + 11 + x + y = 60$, and $x + y = 18$. Any two values with a sum of 18 where one value is less than or equal to 6 and the other is greater than or equal to 7 will work.
9. The mean and median are both tripled. Sample answer: Use the data set 3, 5, 12, 15, 20. The median is 12, and the mean is 11. If the values are tripled, the data set is 9, 15, 36, 45, 60. The median is 36, and the mean is 33. The median and mean are 3 times the median and mean of the original data set.
10. mean: 84.5, median: 83
11. Part A   Burgers, etc: median: 21.5, mean: 23.3
    Al's Diner: median: 55, mean: 45.8
    Part B   median: Sample answer: The Al's Diner data set has outliers, which makes the median more representative of the data.

12. Part A
    Eagles: 186, 190, 194, 201, 202, 203, 214, 324; average of middle values is $(201 + 202) \div 2 = 201.5$
    Blazes: 233, 245, 266, 271, 280, 290, 308, 316; average of middle values is $(271 + 280) \div 2 = 275.5$
    Mavericks: 141, 152, 163, 190, 202, 259, 276, 280; average of middle values is $(190 + 202) \div 2 = 196$
    Part B
    Eagles: $(194 + 203 + 201 + 186 + 214 + 202 + 190 + 324) \div 8 \approx 214.3$
    Blazes: $(245 + 308 + 280 + 233 + 316 + 266 + 290 + 271) \div 8 \approx 276.1$
    Mavericks: $(152 + 280 + 259 + 141 + 190 + 276 + 163 + 202) \div 8 \approx 207.9$
    Part C   median, because the Eagles' data set contains an outlier; The Blazes have the most people at the their games. The median for the Eagle and Mavericks are close to each other, and much less than that of the Blazes.
    Part D   Sample answer: Replace 233 with 50. Since 271 and 280 are still the middle two values, the median is unchanged at 275.5. The mean is $(50 + 245 + 266 + 271 + 280 + 290 + 308 + 316) \div 8 \approx 253.3$. The mean decreased by over 20 by replacing one value with an outlier that is much less than the other data elements.