Measures of Central Tendency

Answer Key

1) Answer: A
Explanation: The mean score of the LA Lakers for the previous 10 games is 89. This implies that the total scores the team obtained for the 10 games is 10 x 89 = 890 (recall that sum of observations = mean of observations x total number of observations).

The problem states that in the 11th game, LA Lakers garnered 70 points against Denver Nuggets. Therefore, their total score for the 11 previous games must be

$$890 + 11 = 901$$

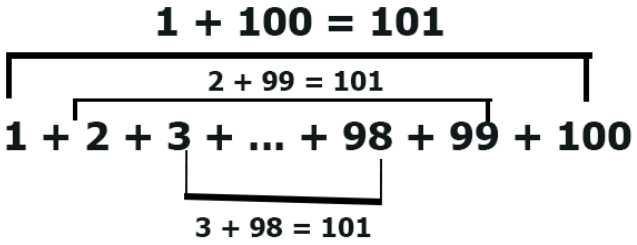
To find the mean score for the 11 games, we divide 901 by 11:

$$901/11 = 81.909..$$

We have obtained a value of 81.901. Rounding the final answer into the nearest whole number, the final answer should be 82.

2) Answer: B
Explanation: To find the mean of the first 100 counting numbers, we must add all the whole numbers from 1 - 100 and then divide the sum by 100. However, it is quite tedious to do so.

Here's a quick way to find the sum of the first 100 counting numbers:



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Note that if we do this pairing, we will have 50 pairs with a sum of 101. Thus, the sum from 1 - 100 must be 50 x 101 = 5050.

We divide 5050 by 100 to obtain the mean: 5050/100 = 50.5

Thus, the answer is 50.5.

3) Answer: D
Explanation: The modal musical genre is the one that appears the most or with the highest frequency. Looking at the given table, the musical genre with the highest frequency is Rock.

Musical Genre	Frequency
Jazz	50
Pop	100
Classical Music	80
Reggae	50
OPM	100
Rock	150

4) Answer:
Explanation: D
If we arrange the given observations numerically:

32, 48, 49, 122, 12, 15, 27, 33, 51, 78

12, 15, 27, 32, 33, 48, 49, 51, 78, 122

Since we have an even number of observations, we expect that there will be two middle values.

The middle values are 33 and 48: 12, 15, 27, 32, **33, 48**, 49, 51, 78, 122.

To find the median, we have to obtain the mean of these two middle values:

$$\frac{33+48}{2} = \frac{81}{2} = 40.5$$

Thus, the median is 40.5. Note that 40.5 is not included in the observations, so we are assured that option A is true.

Meanwhile, the mean of the set of observations can be calculated by obtaining their sum and then dividing the result by 10:

$$\frac{32+48+49+122+12+15+27+33+51+78}{10} = 467/10 = 46.7$$

Hence, the mean is 46.7.

The mean is larger or greater than the median. Therefore, option B is true.

Option C is not true since there's no mode in the given set of observations (no observation is repeated, and all observations only occurred once).

So, option D must be the answer.

5) Answer: A
Explanation: If all observations were increased by a certain real number, we expect that the mean of those observations will also increase by the same real number. Thus, if the mean of the observations is *y*, then if all observations increase by *x*, the mean will also increase by *x*. Thus, the new mean is *y* + *x*.