

MEASURES OF CENTRAL TENDENCY

Complete the following problems to reinforce your understanding of the concept covered in this module.

Problem 1:

The tuition costs of a certain University system of 10 schools are:

\$7,568, \$8,650, \$9,225, \$5,880, \$6,720, \$8,840, \$7,820, \$8,260, \$8,432, and \$8,990

Determine the median tuition costs for this University system.

Problem 2:

The stem and leaf plot represents the scores on a certain Engineering exam.

Stem	Leaf
5	6,8 9
6	1,6,9
7	4,5,7,7,9,9
8	2,4,6,7,7,8,8,9
9	1,3,3,4,4,5,5,5,7
10	0,0

Determine the median and mode scores.

Problem 3:

The stem and leaf plot represents the scores on a certain Engineering exam.

PRACTICE PROBLEMS

Stem	Leaf
3	2,4
4	0,2
5	1,1,3,7
6	2,3,4,4,6,8
7	1,3,5,6,7,9
8	2,5,6,8,8
9	3,6

Determine the median and mode scores.

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Solution 1:

The median is the number, value, where there are as many observations above as there are below the number. The median allows a person to eliminate or reduce the skewing effect created by observations that are extremely high or extremely low.

The elements, ordered, that we are working with are:

\$5,880, \$6,720, \$7,568, \$7,820, \$8,260, \$8,432, \$8,650, \$8,840, \$8,990, and \$9,225

Since there are an even number of elements, the median is halfway between the two middle tuition costs, \$8,260 and \$8,432.

Therefore, the median is:

$$\frac{8260 + 8432}{2} = \$8,346$$

The median tuition cost is \$8,346.

Solution 2:

Referencing the leaf plot:

Stem	Leaf
5	6,8 9
6	1,6,9
7	4,5,7,7,9,9
8	2,4,6,7,7,8,8,9
9	1,3,3,4,4,5,5,5,7
10	0,0

There are 31 scores shown. The median is the middle score, or the 16th value. In this case, the 16th value is 87.

The mode is the score that appears the most often. In stem 9, there are three leaves with a value of 5, therefore, the mode is 95.

Solution 3:

Referencing the leaf plot:

Stem	Leaf
3	2,4
4	0,2
5	1,1,3,7
6	2,3,4,4,6,8
7	1,3,5,6,7,9
8	2,5,6,8,8
9	3,6

There are 27 scores shown. The median is the middle score, or the 14th value. In this case, the 16th value is 68.

The mode is the score that appears the most often. Note that there are 3 modes, 51, 64, and 88, all occurring three times.