Name: _____ Date: _____

The Million Dollar House That Fooled the Mean

Circle group

Theo was making a poster about the five houses on his street. All five were sold in the same year. Four sold for $200,000, $210,000, $220,000, and $230,000. The fifth was a huge house. It sold for $1,000,000.

Theo wanted one number to show the price of a house on his street. First he tried the mean. To find the mean, you add all the numbers. Then you divide by how many there are. The total was $1,860,000. Divide by 5 and you get $372,000. Theo frowned. No house on his street cost that much. Four of the five cost less.

His teacher told him to try the median. To find the median, you put the numbers in order from smallest to largest. Then you pick the middle one. Theo's middle number was $220,000. That fit his street much better.

The giant house is an outlier. An outlier is a number far from the others. It can pull the mean way up, but it hardly moves the median. If the big house had sold for $250,000, the mean would be $222,000. That is close to the median. Theo learned that he must think about which number tells the truth.

Questions

1. How do you find the mean?

_____

_____

2. What was the mean of the five house prices?

_____

_____

3. How do you find the median?

_____

_____

4. What is an outlier?

_____

_____

5. Why was the mean not a good number for Theo's street?

_____

_____

6. What would the mean be like if the big house cost $250,000?

_____

_____

Words to know

mean: the number you get when you add everything and divide by how many
median: the middle number when a list is put in order
outlier: a number that is far from the rest

Talk together (every group has these)

1. Find one fact that every group read. How did your sheet say it?
2. What did your sheet tell you that you think another group's did not? Ask them.
3. What is one question about this topic that none of the sheets answered?

Name: _____ Date: _____

The Million Dollar House That Fooled the Mean

Triangle group

Theo was making a poster about the five houses on his street. All five had been sold in the same year. Four of them sold for $200,000, $210,000, $220,000, and $230,000. The fifth was a huge house, and it sold for $1,000,000.

Theo wanted a single number that would show what a typical house on his street costs. First he tried the mean. To find the mean, you add up all the numbers and divide by how many there are. The total was $1,860,000, and dividing by 5 gave $372,000. Theo frowned, because not one house on his street cost anywhere near that much. In fact, four of the five had sold for much less.

His teacher recommended the median instead. To find the median, you line the numbers up from smallest to largest and pick the one in the middle. Theo's middle number was $220,000. That number described the street much more honestly.

The giant house is called an outlier, which is a number far away from the others. An outlier can pull the mean up or down a lot, but it hardly moves the median. If the big house had sold for $250,000, the mean would have been $222,000, very close to the median. Theo learned that both numbers are useful, but he must think about which one tells the truth.

Questions

1. How do you find the mean of a group of numbers?

_____

_____

2. What was the mean of the five house prices?

_____

_____

3. How do you find the median?

_____

_____

4. What is an outlier?

_____

_____

5. Why did the mean not describe a typical house on Theo's street?

_____

_____

6. What would have happened to the mean if the big house had sold for $250,000?

_____

_____

Words to know

mean: the number you get when you add everything and divide by how many
median: the middle number when a list is put in order
outlier: a number that is far from the rest
typical: usual, or like most of the others

Talk together (every group has these)

1. Find one fact that every group read. How did your sheet say it?
2. What did your sheet tell you that you think another group's did not? Ask them.
3. What is one question about this topic that none of the sheets answered?

Name: _____ Date: _____

The Million Dollar House That Fooled the Mean

Square group

Theo was putting together a poster about the five houses on his street, all of which had been sold during the same year. Four of them sold for $200,000, $210,000, $220,000, and $230,000. The fifth was an enormous mansion, and it sold for a startling $1,000,000.

Theo wanted a single number that would represent what a house on his street costs. At first he calculated the mean. To find the mean, you add up all of the numbers and then divide by how many numbers there are. The total came to $1,860,000, and dividing by 5 gave him $372,000. Theo frowned, because not one house on his street cost anywhere near that much. In fact, four of the five had sold for less.

His teacher recommended that he try the median instead. To find the median, you arrange the numbers from smallest to largest and select the one in the middle. Theo's middle number was $220,000, and that figure represented his street far more honestly.

The enormous house is known as an outlier, which means a number that lies far away from all the others. An outlier can drag the mean sharply upward or downward, yet it barely moves the median. Had the mansion sold for only $250,000, the mean would have been $222,000, very close to the median. Theo realized that both numbers are valuable, but a careful person must decide which one tells the truth.

Questions

1. How is the mean of a set of numbers calculated?

_____

_____

2. What was the mean of the five house prices?

_____

_____

3. How do you find the median of a list of numbers?

_____

_____

4. What is an outlier?

_____

_____

5. Why did the mean fail to describe a typical house on Theo's street?

_____

_____

6. How would the mean have changed if the mansion had sold for $250,000?

_____

_____

Words to know

mean: the number you get when you add everything and divide by how many
median: the middle number when a list is put in order
outlier: a number that is far from the rest

Talk together (every group has these)

1. Find one fact that every group read. How did your sheet say it?
2. What did your sheet tell you that you think another group's did not? Ask them.
3. What is one question about this topic that none of the sheets answered?

For the teacher: The Million Dollar House That Fooled the Mean

Each student sheet carries a shape, not a level. The same topic and facts, written three ways.

Circle: The Million Dollar House That Fooled the Mean

Easier · 188 words · Flesch-Kincaid grade 1.7

1. You add up all the numbers and divide by how many there are.
2. $372,000.
3. You put the numbers in order and pick the one in the middle.
4. A number that is far from the others.
5. The one huge house pulled it up, so it was more than four of the five prices.
6. It would be close to the median, because there would be no outlier.

Triangle: The Million Dollar House That Fooled the Mean

This passage · 212 words · Flesch-Kincaid grade 4

1. You add up all the numbers and divide by how many there are.
2. $372,000.
3. You line the numbers up from smallest to largest and pick the one in the middle.
4. A number that is far away from the others.
5. The one very expensive house pulled the mean up, so it was higher than four of the five prices.
6. It would have dropped close to the median, because there would be no outlier.

Square: The Million Dollar House That Fooled the Mean

Harder · 226 words · Flesch-Kincaid grade 6.2

1. You add up all the numbers and divide by how many numbers there are.
2. $372,000.
3. You arrange them from smallest to largest and select the middle one.
4. A number that lies far away from all the others.
5. The single mansion dragged it upward, so it was higher than four of the five prices.
6. It would have dropped close to the median, since there would be no outlier.