

# Understanding mean and media

October 16, 2013

## 1 x12501ec401d7d33c

These are the scores for Sam's English tests:  
78, 80, 82, 85, 90.

The median is the middle score, i.e. 82.

\*\*Choose the correct statement(s).\*\*

**Ans** ☐ Sam scored 82 on one test

☐ Sam had as many test scores below 82 as above

☐ The average of all of Sam's scores is 82

☐ Sam scored 82 in all the tests

**Hint 1** Depending on whether the number of scores is odd or even, the median score is the middle score or the average of the two middle scores. When the number of scores is odd as in this case, the median score is equal to one of the test scores.

**Hint 2** However, the median need not be equal to the average score. In this case, the average of the five scores is not equal to the median score.

**Hint 3** "Sam had as many test scores below 82 as above", and

"Sam scored 82 on one test"  
are correct.

**Tags:** CC.6.SP.A.2, SB.6.1.I.3.CR, Understanding mean and median

**Version:** 37fa5355.. 2013-10-07

## 2 x13a4544e8e3e0888

Lisa collected the following information on number of bedrooms in houses in her neighborhood:

2, 1, 3, 4, 2, 3, 3, 1, 4, 3, 2, 2, 3

\*\*The mean number of bedrooms is  $\frac{2+1+3+4+2+3+3+1+4+3+2+2+3}{13}$ . \*\*The median number of bedrooms is  $\frac{2+1+3+4+2+3+3+1+4+3+2+2+3}{2}$ .

\*\*Is the mean or the median a better choice for the measure of center of this data set? \*\*

**Ans** The mean is a better choice because the numbers are almost equally spread around the mean, but not around the median.

The median is a better choice because the mean is high compared to most of the numbers.

☐ The mean or the median could be used as the measure of center.

**Hint 1** We can calculate the mean as follows:

$$\begin{aligned}\text{Mean} &= \frac{\text{Sum of number of bedrooms in all the houses}}{\text{Number of houses}} \\ &= \frac{2+1+3+4+2+3+3+1+4+3+2+2+3}{14} \\ &= \frac{35}{14} \\ &= 2.5\end{aligned}$$

**Hint 2** In this case the median is the average of the two middle numbers when all of them are arranged in order:

1, 1, 2, 2, 2, 2, 2, 3, 3, 3, 3, 3, 4, 4

$$\begin{aligned}\text{median} &= \frac{2+3}{2} \\ &= 2.5\end{aligned}$$

**Hint 3** Since the mean and the median are equal to each other, any one could be used as the measure of center.

**Hint 4** The mean as well as the median number of bedrooms is 2.5. The mean or the median could be used as the measure of center.

**Tags:** CC.6.SP.A.3, SB.6.1.I.4.SR, Understanding mean and median

**Version:** 5e896c18.. 2013-10-07

## 3 x1ff165cef2f387d4

There are 2, 1, 3, 1, and 4 children, respectively in 5 families who live on the same street. Therefore, the mean number of children in a family is 2.2, i.e.

$$\frac{(2+1+3+1+4)}{5} = 2.2.$$

\*\*Choose the correct statement.\*\*

**Ans** Exactly one family has 2.2 children.

There are as many families with less than 2.2 children as those above.

☐ The average number of children for the 5 families is 2.2  
☐ All the 5 families have 2.2 children each.

**Hint 1** The mean is the average, calculated in this case as the total number of children divided by the number of families. The mean may or may not be equal to any of the individual values; and may or may not be equal to the middle value.

**Hint 2** "The average number of children for the 5 families is 2.2" is the correct statement.

**Tags:** CC.6.SP.A.2, SB.6.1.I.3.CR, Understanding mean and median

**Version:** d5e5b3e1.. 2013-10-07

## 4 x25848fe18ef6021a

During the regular football season 2012, the points scored by the 39ers in their games were as follows:

30, 27, 13, 34, 45, 3, 13, 24, 24, 32, 31, 13, 27, 41, 13, 27

**\*\*How many points did they score per game on average?\*\***

**Ans**

**Hint 1** We can calculate the average by dividing total points scored in all the games by the total number of games.

**Hint 2**

$$\text{Average points per game} = \frac{\text{Total points scored in all the games}}{\text{Number of games}}$$

$$= \frac{397}{16}$$

$$= 24.8$$

**Hint 3** The 39ers scored 24.8 points per game on average.

**Tags:** CC.6.SP.A.2, SB.6.1.I.3.CR, Understanding mean and median

**Version:** 5b70db23.. 2013-10-07

## 5 x38d7f233055d08c4

During the regular football season 2012, the points scored by the 39ers in their games were as follows:

30, 27, 13, 34, 45, 3, 13, 24, 24, 32, 31, 13, 27, 41, 13, 27

**\*\*What was the team's most common score during the season?\*\***

**Ans**

**Hint 1** The 39ers scored 13 points most often.

**Tags:** CC.6.SP.A.2, SB.6.1.I.3.CR, Understanding mean and median

**Version:** c7de8775.. 2013-10-07

## 6 x3942c6557a955c9d

Over the last 15 days the maximum daily temperatures (in degrees Fahrenheit) in a city have been as follows:

72, 72, 78, 74, 76, 72, 70, 66, 71, 73, 70, 72, 75, 74, 78

The mean temperature is  degrees Fahrenheit.

The median temperature is  degrees Fahrenheit.

A group of tourists wants to know how warm it has been in the last 15 days.

**\*\*Choose the correct statement.\*\***

**Ans** The tourists could be told about the mean temperature as it is more typical than the median.

The tourists could be told about the median temperature as it is more typical than the mean.

The tourists could be told about the mean or the median temperature as both are equally typical.

**Hint 1** We calculate the arithmetic mean by dividing the total of all daily maximum temperatures by the number of days.

**Hint 2**

$$\text{The arithmetic mean} = \frac{\text{Total of all temperatures}}{\text{Number of days}}$$

$$= \frac{1093}{15}$$

$$= 72.9$$

**Hint 3** The median is the middle temperature when the 15 temperatures are arranged in order.

66, 70, 70, 71, 72, 72, 72, 72, 73, 74, 74, 75, 76, 78, 78

**Hint 4** Since the mean and the median are almost the same, "the tourists could be told about the mean or the median as both are equally typical."

**Tags:** CC.6.SP.A.2, SB.6.1.I.3.CR, Understanding mean and median

**Version:** 52067da2.. 2013-10-09

## 7 x3bc79e6496f3ef60

There are 1, 1, 2, 3, and 3 children, respectively in 5 families who live on the same street. Therefore, the mean number of children in a family is 2, i.e.

$$\frac{(1 + 1 + 2 + 3 + 3)}{5} = 2.$$

**\*\*Choose the correct statement(s).\*\***

**Ans** Exactly one family has 2 children.

There are as many families with less than 2 children as those above.

The average number of children for the 5 families is 2

All the 5 families have 2 children each.

**Hint 1** The mean is the average, calculated in this case as the total number of children divided by the number of families.

**Hint 2** The mean may or may not be equal to any of the individual values (e.g. the mean of 2, 3, and 7 is 4, which is not equal to any of the values), but in this case there is one family with 2 children.

**Hint 3** The mean may or may not be the middle value (e.g. 2, 3, and 7; the mean is 4 but the middle value is 3), but in this case 2 is also the middle of the 5 numbers; and there are 2 families with less than 2 children and 2 families with more.

**Hint 4** "The average number of children for the 5 families is 2",

"Exactly one family has 2 children",

"There are as many families with less than 2 children as those above" ,

are all correct statements.

**Tags:** CC.6.SP.A.2, SB.6.1.I.3.CR, Understanding mean and median

**Version:** f690cbe5.. 2013-10-07

## 8 x50bd6292aacbd047

According to the census each household in a certain city has on average 3.85 members.

\*\*Choose the correct statement(s).\*\*

**Ans** Each household in the city has 3.85 members.

There are some households in the city that have 3.85 members.

The census is invalid because there is no household in the city with 3.85 members.

Many households in the city are likely to have 3 to 5 members each.

**Hint 1** It is impossible to have fractional number of members in any household because people come in whole numbers! Does the average also need to be a whole number?

**Hint 2** The average number of members in a household is a ratio.

Average number of members =  $\frac{\text{Total number of people in all households}}{\text{number of households}}$

For example, there could be 385 people living in 100 households, giving us an average of 3.85.

**Hint 3** "Many households in the city are likely to have 3 to 5 members each." is the correct statement.

**Tags:** CC.6.SP.A.2, SB.6.1.I.3.CR, Understanding mean and median

**Version:** e48bb556.. 2013-10-07

## 9 x58d4621135f229f1

There are 3 classes in a school with 32, 35, and 41 students, respectively.

\*\*How many students would there be in each class if each class had the same number of students?\*\*

**Ans**  students 36

**Hint 1** We can use the average to have the same number of students in each of the classes.

$$\begin{aligned}\text{Average} &= \frac{\text{Total number of students in all the classes}}{\text{Number of classes}} \\ &= \frac{32 + 35 + 41}{3} \\ &= 36\end{aligned}$$

**Hint 2** There would be 36 students in each class.

**Tags:** CC.6.SP.A.2, SB.6.1.I.3.CR, Understanding mean and median

**Version:** 154ef868.. 2013-10-07

## 10 x5b321d412a594418

The geographical sizes (in thousands of square kms) of Post-Soviet countries are shown in the table.

\*\*The average size is  thousand square kms.\*\* \*\*The median size is  thousand square kms.\*\*

\*\*Is the mean or the median a better choice for the measure of center of this data set?\*\*

Country	Size
Armenia	12
Azerbaijan	87
Belarus	208
Estonia	45
Georgia	68
Kazakhstan	2725
Kyrgyzstan	200
Latvia	65
Lithuania	65
Moldova	34
Russia	17098
Tajikistan	143
Turkmenistan	5126
Ukraine	604
Uzbekistan	447

**Ans** The mean is a better choice because the sizes are almost equally distributed around the mean sizes.

The median is a better choice because the mean is high compared to most of the sizes.

The mean or the median could be used as the measure of center because both are equally good.

**Hint 1** We would calculate the mean size as follows:

$$\begin{aligned}\text{Mean size} &= \frac{\text{Sum of areas of all the countries}}{\text{Number of countries}} \\ &= \frac{26927}{15} \\ &= 1795\end{aligned}$$

**Hint 2** The median is the middle number when the areas are arranged in order:

12, 34, 45, 65, 68, 68, 87, 143, 200, 208, 447, 604, 2725, 5120, 17098  
Median size = 143

**Hint 3** Only 3 countries out of 15 are greater in size than the mean size of 1795 thousand square kms. Therefore, the median is a better choice as the measure of center.

**Hint 4** The mean size 1795 thousand square kms. The median size is 143 thousand square kms. The median is a better choice because the mean is high compared to most of the sizes.

**Tags:** CC.6.SP.A.3, SB.6.1.I.4.SR, Understanding mean and median

**Version:** ec8dd07e.. 2013-10-07

## 11 x5d79f3f689e4505e

John got the following scores on his science tests this year:

80, 85, 85, 90, 85, 85, 95, 85, 80

**\*\*What score did John get most frequently?\***

**Ans**

**Hint 1** John got a score of 85 most frequently.

**Tags:** CC.6.SP.A.2, SB.6.1.I.3.CR, Understanding mean and median

**Version:** 4323658d.. 2013-10-07

## 12 x65d01dadbdb24ac3

Over the last 15 days of August the maximum daily temperatures (in degrees Fahrenheit) in a city were as follows:

72, 72, 78, 74, 76, 72, 69, 66, 69, 73, 70, 72, 73, 74, 75

**\*\*Which of \*these\* temperatures could be used to summarize the observations?\***

**Ans** [[? input-number 1]] degrees Fahrenheit 72

**Hint 1** We could use the middle temperature (the median) to summarize the 15 temperatures.

**Hint 2** The median is the middle temperature when the 15 temperatures are arranged in order.

66, 69, 69, 70, 72, 72, 72, 72, 73, 73, 74, 74, 75, 76, 78

**Hint 3** We could use a temperature of 72 degrees Fahrenheit to summarize the observations.

**Tags:** CC.6.SP.A.2, SB.6.1.I.3.CR, Understanding mean and median

**Version:** 8788ae79.. 2013-10-16

## 13 x6c571dd50d4c11ed

Babe Ruth hit the following number of home runs in each of seasons he played:

54, 59, 35, 41, 46, 25, 47, 60, 54, 46, 49, 46, 41, 34, 22

**\*\*On average he hit [[? input-number 1]] home runs every season.\*\***  
**\*\*The median number of home runs Babe Ruth hit is [[? input-number 2]].\*\***

**\*\*Is the average or the median a better choice for the measure of center of this data set?\***

**Ans** The average is a better choice in comparison to the median because the median is too high.

The median is a better choice because the average is low compared to most of the numbers..

The mean or the median could be used as the measure of center because both are equally good.

**Hint 1** We could work out the average number of home runs per season as follows:

$$\begin{aligned}\text{Mean} &= \frac{\text{Sum of home runs in all the seasons}}{\text{Number of seasons played}} \\ &= \frac{659}{15} \\ &= 43.9\end{aligned}$$

**Hint 2** The median would be the middle number when arranged in order:

22, 25, 34, 35, 41, 41, 46, 46, 47, 49, 54, 54, 59, 60

Median = 46

**Hint 3** The mean and the median are almost equal to each other. Therefore, either one may be used as the measure of center.

**Hint 4** The mean is 43.9. The median is 46. The mean or the median could be used as the measure of center because both are equally good.

**Tags:** CC.6.SP.A.3, SB.6.1.I.4.SR, Understanding mean and median

**Version:** 12709b89.. 2013-10-07

## 14 x6d2380512fbc2a3

There are 4 bookshelves in the school library with 12, 10, 16, and 18 books, respectively.

**\*\*How many books would there be on each shelf if each shelf had the same number of books?\***

**Ans** `[[? input-number 1]]` books 14

**Hint 1** We can use the mean to balance the number of books on each shelf.

$$\begin{aligned}\text{Mean} &= \frac{\text{Sum of books on all shelves}}{\text{Number of shelves}} \\ &= \frac{12 + 10 + 16 + 18}{4} \\ &= 14\end{aligned}$$

**Hint 2** Each shelf would have 14 books.

**Tags:** CC.6.SP.A.2, SB.6.1.I.3.CR, Understanding mean and median

**Version:** fca3db4d.. 2013-10-07

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## 15 x7535a2968731f567

Sam has taken more than one test this year and he is looking at the scores he earned on his tests. He has never earned the same score more than once. The median of his scores is 88.

**\*\*Which statement(s) must be true?\***

**Ans** Sam scored 88 on exactly one test

Sam had as many test scores below 88 as above

The average of all of Sam's scores is 88

Sam scored 88 on all the tests

**Hint 1** If there is an odd number of scores, the median is the middle value. One possible list of scores with 88 as the median is:

32, 88, 89

**Hint 2** We can see that the average is not 88 in this example.

**Hint 3** We can also see that Sam had scores other than 88.

**Hint 4** If there's an even number of scores, the median is the average value of the middle two scores. Another possible list of scores with 88 as the median is:

47, 86, 90, 100

**Hint 5** In this example, Sam didn't score exactly 88 on any test, but the median is still 88.

**Hint 6** In both of these examples, Sam had the same number of scores above and below 88. It's possible that this isn't true, for example:

73, 88, 88

The median is 88, but since 88 \*appeared more than once\*, there aren't any scores above 88, and there is one score below 88.

We were told in the problem that he \*didn't get any score more than once\*, so we can be sure Sam has the same number of scores above and below 88.

**Hint 7** The statement "Sam had as many test scores below 88 as above" alone must be true.

**Tags:** CC.6.SP.A.2, SB.6.1.I.3.CR, Understanding mean and median

**Version:** eafba54e.. 2013-10-04

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## 16 x76efd161589eec48

John got the following scores on his science tests this year:

80, 85, 85, 90, 85, 85, 95, 85, 80

While giving the final grade the teacher gives equal weight to each of the tests.

**\*\*What score would John's final grade be based on?\***

**Ans**

**Hint 1** If the teacher gives equal weight to each of the tests, John's final grade would depend on the average of all his test scores. To find the average of his test scores, we can add the scores and divide the sum by the number of tests.

**Hint 2**

$$\begin{aligned}\text{Average score} &= \frac{\text{Total of all scores}}{\text{Number of tests}} \\ &= \frac{770}{9} \\ &= 85.6\end{aligned}$$

**Hint 3** John's final grade would be based on a score of 85.6.

**Tags:** CC.6.SP.A.2, SB.6.1.I.3.CR, Understanding mean and median

**Version:** 060c9691.. 2013-10-08

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## 17 x79c3f41c2ca154de

The salaries (in millions of dollars) of players on Coston Beltics basketball team are as follows:

6.4, 2.5, 1.2, 2.1, 2, 8.7, 12, 5.2, 1.9, 0.5, 12, 1.4, 10

**\*\*The mean salary is \$ [[? input-number 1]] millions.\*\***  
**\*\*The median salary is \$ [[? input-number 2]] millions.\*\***  
**\*\*Is the mean or the median a better choice for the measure of center of this data set?\*\***

**Ans** The mean is a better choice in comparison to the median because the median is too low.

The median is a better choice because the mean is low compared to most of the salaries.

The mean or the median could be used as the measure of center because both are equally good.

**Hint 1** We can arrive at the mean salary by dividing the total of all salaries by the number of players.

$$\begin{aligned}\text{Mean salary} &= \frac{\text{Sum of all salaries}}{\text{Number of salaries}} \\ &= \frac{65.9}{13} \\ &= 5.1\end{aligned}$$

**Hint 2** The median is the middle salary when the salaries are arranged in order:

0.5, 1.2, 1.4, 1.9, 2, 2.1, **2.5**, 5.2, 6.4, 8.7, 10, 12, 12  
Median salary = 2.5

**Hint 3** Among the 13 salary figures, there are 7 salary figures which are lower than the mean salary (\$5,100,000), and the other 6 salary figures are higher than the mean. The median, although it is the middle salary (\$2,500,000), is way too low in comparison to all the salaries at the higher end. Therefore, for this data set mean salary would be better as the measure of center.

**Hint 4** The mean salary is \$5,100,000. The median salary is \$3,750,000. The mean is a better choice in comparison to the median because the median is too low.

**Tags:** CC.6.SP.A.3, SB.6.1.I.4.SR, Understanding mean and median

**Version:** 9df30b15.. 2013-10-07

## 18 x9100a31b0c60a126

In a middle school the following final grades were awarded to a group of 11 students in mathematics :

C+, B-, B+, C, B+, B-, A-, A+, B, B+, B-

**\*\*Which grade could be used to describe the overall achievement of the class?\*\***

**Ans** B

**Hint 1** The overall achievement of the class can be described by the mean or the median grade.

**Hint 2** It is not possible to calculate the mean since we do not know the numerical value of the grades.

**Hint 3** The median is the middle grade when all 11 grades are arranged in order.

C, C+, B-, B-, B-, **B**, B+, B+, B+, A-, A+

**Hint 4** The overall class achievement could be described as grade B

**Tags:** CC.6.SP.A.2, SB.6.1.I.3.CR, Understanding mean and median

**Version:** 01f8304b.. 2013-10-16

## 19 x95c7dae7a87f1163

Justin got the following numbers when he rolled a die 11 times.

1, 6, 2, 4, 3, 2, 1, 6, 2, 1, 6

**\*\*The mean is [[? input-number 1]].\*\*** **\*\*The median is [[? input-number 2]].\*\***

**\*\*Is the mean or the median a better choice for the measure of center of this data set?\*\***

**Ans** The mean is a better choice in comparison to the median because the median is too low.

The median is a better choice because the mean is high compared to most of the salaries.

The mean or the median could be used as the measure of center because both are equally good.

**Hint 1** Let us calculate the mean.

$$\begin{aligned}\text{Mean} &= \frac{\text{Sum of all numbers}}{\text{Number of times the die was rolled}} \\ &= \frac{34}{11} \\ &= 3.1\end{aligned}$$

**Hint 2** The median is the middle number when they are arranged in order:

1, 1, 1, 2, 2, **2**, 3, 4, 6, 6, 6

Median = 2

**Hint 3** Among the 11 numbers, there are 7 numbers which are lower than the mean, and 4 higher than the mean. The median, although it is the middle number, is too low in comparison to all the numbers at the higher end. Therefore, for this data set mean would be a better choice as the measure of center.

**Hint 4** The mean is 3.1. The median is 2. The mean is a better choice in comparison to the median because the median is too low.

**Tags:** CC.6.SP.A.3, SB.6.1.I.4.SR, Understanding mean and median

**Version:** bab39cbe.. 2013-10-07

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## 20 xa5f3617d9a0bd7d7

A group of 10 people have the following number of friends on Facebook

131, 168, 268, 130, 144, 237, 159, 146, 286, 157

**\*\*Which of \*these\* numbers could best summarize the data?\***

**Ans**

**Hint 1** We could summarize the data by using the average or the median.

**Hint 2**

$$\begin{aligned}\text{Average number of friends} &= \frac{\text{Total number of friends}}{\text{Number of people}} \\ &= \frac{1826}{10} \\ &= 182.6\end{aligned}$$

But 182.6 is not part of the original set of numbers.

**Hint 3** In this case the median would be the average of the two middle numbers, when the numbers are arranged in order.

**Hint 4** 130, 131, 144, 146, 157, 159, 168, 237, 268, 286

$$\begin{aligned}\text{Median} &= \frac{157 + 159}{2} \\ &= 158\end{aligned}$$

**Hint 5** We could use 158 to summarize the given data .

**Tags:** CC.6.SP.A.2, SB.6.1.I.3.CR, Understanding mean and median

**Version:** 3a8a8ebe.. 2013-10-16

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## 21 xa93386ad45c17b68

A group of 10 people have the following number of friends on Facebook

131, 168, 268, 130, 144, 237, 159, 146, 286, 157

**\*\*On average how many friends does each person have on facebook?\***

**Ans**

**Hint 1** We can calculate the average by dividing the total number of friends by the number of people.

**Hint 2**

$$\begin{aligned}\text{Average number of friends} &= \frac{\text{Total number of friends}}{\text{Number of people}} \\ &= \frac{1826}{10} \\ &= 182.6\end{aligned}$$

**Hint 3** This group of people on average has 182.6 friends on facebook.

**Tags:** CC.6.SP.A.2, SB.6.1.I.3.CR, Understanding mean and median

**Version:** 036ad61d.. 2013-10-16

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## 22 xb9001c5c9b794f88

In the Men's singles of a tennis tournament, the number of sets played in each of the matches were as follows:

Pre-Quarters : 5, 4, 3, 4, 3, 5, 4, 4

Quarters : 4, 3, 5, 3

Semis : 5, 3

Final : 4

**\*\*Typically, how many sets did a match last?\***  
Give your answer as a whole number.

**Ans** [[? input-number 1]] sets 4

**Hint 1** Let us begin by arranging the number of sets in order. The median would be the middle number.

3, 3, 3, 3, 3, 4, 4, 4, 4, 4, 5, 5, 5, 5

**Hint 2** Since there are 5 matches with 3 sets each, 6 matches with 4 sets each, and 4 matches with 5 sets each, we can estimate that the average number of sets per match is very also close to 4.

**Hint 3** We can say that typically, a match lasted 4 sets.

**Tags:** CC.6.SP.A.2, SB.6.1.I.3.CR, Understanding mean and median

**Version:** 1df62f58.. 2013-10-16

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## 23 xbbb6d2164d7f5df8

The average annual rainfall in a certain region is 30 inches. Last year it rained only 25 inches. A farmer would like to know about the rainfall this year since it has not rained much so far.

**\*\*Choose the correct statement.\***

**Ans** This year it would rain exactly 30 inches.

It would rain more than 30 inches this year because last year it rained less.

It would rain less than 30 inches this year just like it did last year.

It is impossible to predict anything for sure.

**Hint 1** The average annual rainfall figure is based on data from many past years. The variation from year to year could be relatively small (e.g. 32, 30, 28) or could be relatively large (e.g. 20, 25, 30, 35, 40).

**Hint 2** Since the rainfall varies from year to year, it is not possible to predict anything regarding this year's rainfall just because the average is 30 inches, or because the rainfall last year was only 25 inches. The rainfall this year (or in any particular year) could be less than, equal to, or more than 30 inches.

**Hint 3** "It is impossible to predict anything for sure." is the correct statement.

**Tags:** CC.6.SP.A.2, SB.6.1.I.3.CR, Understanding mean and median

**Version:** 32db0463.. 2013-10-07

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## 24 xbd23751064c9d7e7

In a leap year, the days in a month vary from January to December as shown in the table:

\*\*How many days does the average month have in a leap year?\*\*

Month	Days	-	-	-	-	January	31	February
	29	March	31	April	30	May	31	June
	30	July	31	August	31	September	30	
	October	31	November	30	December	31		

**Ans** [[? input-number 1]] days 30.5

**Hint 1** To have the same number of days every month, we would have to divide the total number of days in a leap year among the 12 months equally.

**Hint 2**

$$\begin{aligned}\text{The average number of days} &= \frac{\text{Total number of days in a leap year}}{\text{Number of months}} \\ &= \frac{366}{12} \\ &= 30.5\end{aligned}$$

**Hint 3** On average there are 30.5 days in a month in a leap year.

**Tags:** CC.6.SP.A.2, SB.6.1.I.3.CR, Understanding mean and median

**Version:** 74e3c524.. 2013-10-09

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## 25 xcb2fe394520941c9

A group of 6 children have with them 12, 24, 23, 17, 18 and 20 marbles, respectively.

\*\*How many marbles would each child have if the marbles were to be shared equally?\*\*

**Ans** [[? input-number 1]] marbles 19

**Hint 1** We can use the mean to find the number of marbles with each child, if the marbles were to be shared equally.

$$\begin{aligned}\text{Mean} &= \frac{\text{Sum of marbles with all children}}{\text{Number of children}} \\ &= \frac{12 + 24 + 23 + 17 + 18 + 20}{6} \\ &= 19\end{aligned}$$

**Hint 2** Each child would have 19 marbles.

**Tags:** CC.6.SP.A.2, SB.6.1.I.3.CR, Understanding mean and median

**Version:** 44b4b921.. 2013-10-07

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## 26 xcf651f72ebbc86e

Below are starting salaries (in thousands of dollars) of some of the graduates from Stanward University this year.

40, 42, 44, 50, 50, 51, 51, 51, 52, 52, 52, 52, 52, 54, 54

\*\*The mean starting salary is \$ [[? input-number 1]] thousand.\*\* \*\*The median starting salary is \$ [[? input-number 2]] thousand.\*\*

\*\*Is the mean or the median a better choice for the measure of center of this data set?\*\*

**Ans** The mean is a better choice because the salaries are almost equally spread around the mean.

The median is a better choice because the mean is low compared to most of the salaries.

The mean or the median could be used as the measure of center because both are equally good.

**Hint 1** We would get the mean salary by dividing the sum of all salaries by the number of salaries.



$$\begin{aligned}\text{Mean salary} &= \frac{\text{Sum of all salaries}}{\text{Number of salaries}} \\ &= \frac{747}{15} \\ &= 49.8\end{aligned}$$

**Hint 2** The median is the middle salary when the salaries are arranged in order:

40, 42, 44, 50, 50, 51, 51, **51**, 52, 52, 52, 52, 52, 54, 54

**Hint 3** Among the 15 starting salaries, there are only 3 salaries which are lower than the mean salary (\$49,800), and the other 12 salaries are higher than the mean. Therefore, for this data set the median salary (\$51,000) would be a better choice for the measure of center compared to the mean salary.

**Hint 4** The mean salary is \$49,800. The median salary is \$51,000. The median is a better choice because the mean is low compared to most of the salaries.

**Tags:** CC.6.SP.A.3, SB.6.1.I.4.SR, Understanding mean and median

**Version:** 84bea1fc.. 2013-10-07

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## 27 xfa7d55dde2bd8d62

A group of 5 children have with them 2, 4, 3, 4, and 2 cookies, respectively.

**\*\*How many cookies would each child have if the children decided to share all the cookies equally?\*\***

**Ans**  cookies 3

**Hint 1** We can use the average to make the number of cookies with each child the same.

$$\begin{aligned}\text{Average} &= \frac{\text{Sum of cookies with all children}}{\text{Number of children}} \\ &= \frac{2 + 4 + 3 + 4 + 2}{5} \\ &= 3\end{aligned}$$

**Hint 2** Each child would have 3 cookies.

**Tags:** CC.6.SP.A.2, SB.6.1.I.3.CR, Understanding mean and median

**Version:** 3697060d.. 2013-10-07

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## 28 xfa7d55dde2bd8d62

At 5 different gas stations the gas prices (in \$ per gallon) were:

4.05, 4.06, 4.09, 4.10, 4.25

**\*\*What was the average gas price for these 5 gas stations?\*\***

**Ans**  per gallon 4.1

**Hint 1** We could get the average price by dividing the total of prices at all the gas stations by the number of gas stations.

**Hint 2**

$$\begin{aligned}\text{Average} &= \frac{\text{Total of all the prices}}{\text{Number of gas stations}} \\ &= \frac{4.05 + 4.06 + 4.09 + 4.10 + 4.25}{5} \\ &= 4.10\end{aligned}$$

**Hint 3** The average gas price was \$4.10 per gallon.

**Tags:** CC.6.SP.A.2, SB.6.1.I.3.CR, Understanding mean and median

**Version:** 9eeb6177.. 2013-10-07

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## 29 xfa7d55dde2bd8d62

There are 5 identical cylindrical jars filled with water up to levels of 6, 4, 9, 5, and 6 cm, respectively.

**\*\*What would the level of water be in each jar if the water were to be equally distributed?\*\***

**Ans**  cm 6

**Hint 1** We can use the mean to make all the levels equal to each other.

$$\begin{aligned}\text{Mean} &= \frac{\text{Sum of levels in all jars}}{\text{Number of jars}} \\ &= \frac{6 + 4 + 9 + 5 + 6}{5} \\ &= 6\end{aligned}$$

**Hint 2** The level would be 6 cm.

**Tags:** CC.6.SP.A.2, SB.6.1.I.3.CR, Understanding mean and median

**Version:** ee0787df.. 2013-10-07

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## 30 xfdc6c4d33b069fcd

During the regular football season 2012, the points scored by the 39ers in their games were as follows:

30, 27, 13, 34, 45, 3, 13, 24, 24, 32, 31, 13, 27, 41, 13, 27

**\*\*Which of \*these\* numbers would best summarize the season's performance?\*\***

**Ans**

**Hint 1** We could use the average or the median to summarize the season's performance

**Hint 2**

$$\text{Average points per game} = \frac{\text{Total points scored in all the games}}{\text{Number of games}}$$

$$= \frac{397}{16}$$

$$= 24.8$$

However, the 39ers did not score 24.8 points in any of their games.

**Hint 3** Let's calculate the median. The number of games is 16. Therefore, the median would be the average of the two middle numbers when the points scored in all the games are arranged in order.

**Hint 4** 3, 13, 13, 13, 13, 24, 24, 27, 27, 27, 30, 31, 32, 34, 41, 45  
The average of 27, and 27, is 27.

**Hint 5** From the given numbers, 27 could best summarize the season's performance.

**Tags:** CC.6.SP.A.2, SB.6.1.I.3.CR, Understanding mean and median

**Version:** f624e369.. 2013-10-16

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