Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

UNIT 10 LESSON 3

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| AIM: | SWBAT find medians  |

**THINK ABOUT IT!**

Suppose a chain restaurant (Restaurant A) advertises that a typical number of french fries in a large bag is 82. The graph shows the number of french fries in selected samples of large bags from Restaurant A.



How many bags were in the sample? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Which of the following statements are true given the data? Select **all** that apply. Explain your reasoning

Half of the bags had more than 82 fries in them

Half of the bags had fewer than 82 fries in them

More than half of the bags had more than 82 fries in them

More than half of the bags had fewer than 82 fries in them

If you got a random bag of fries, the most you would get is 93 fries and the least you would get is 66 fries.

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Key Point

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| The median defines the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of a data set by splitting the data in half. |

**Interaction with New Material**

*Ex. 1)* As we saw yesterday, Mia recorded the resting heart rates of her classmates. Here are the data she collected: 84, 88, 89, 86, 79, 81, 88, 84, 85, 86, 83, 82, 85, 82, 83, 85, 83, 83, 86

* What is the median heart rate of Mia’s classmates?
* Mia realized that she hadn’t put her own resting heart rate in the data set. If she adds her heart rate of 90 bpms, does that change the median? If so, how?

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**PARTNER PRACTICE**

CFS:

* + Annotations: circle keywords/underline what you’re solving for
	+ Values are ordered from least to greatest
	+ Work is shown
	+ Median is identified & BOXED

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| *Bachelor Level* |

1. Lorenzo asked his classmates the question, “How many hours do you spend reading in a week on average?” He recorded the data from his survey in the graph below.



Number of hours spent reading

1. How many students did he survey? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. What is the median of the data? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. What does the median represent in the context of this problem?

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| *Master Level* |

1. The owner of the restaurant chain from the Think About It decided to check the number of french fries at another restaurant in the chain. Here is the data for Restaurant B:

**82, 83, 83, 79, 85, 82, 78, 76, 76, 75, 78, 74, 70, 60, 82, 82, 83, 83, 83**

1. How many bags of fries were counted?
2. Sally, Jake, and Betse all have different ideas of what the median is.
	* Sally claims the median is 75 as she sees that 75 is the middle number in the data set listed above.
	* Jake said the median is 83.
	* Betse argued that the median was halfway between 60 and 85, which is 72.5.

With which person do you agree? Why?

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1. The owner of the chain counted the number of fries in one more bag and 62. Does that change the median? If so, how?

**INDEPENDENT PRACTICE**

CFS:

* + Annotations: circle keywords/underline what you’re solving for
	+ Values are ordered from least to greatest
	+ Work is shown
	+ Median is identified & BOXED

|  |
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| *Bachelor Level* |

1. What is the median of the data set below?

 0 ½ 1 1 ½ 2 2 ½ 3 3 ½ 4 4 ½ 5

1. The dot plot below shows the number of pounds of butter a professional chef cooks with each day.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |  |

 0 $\frac{1}{10}$ $\frac{2}{10}$ $\frac{3}{10} \frac{4}{10} \frac{5}{10} \frac{6}{10} \frac{7}{10} \frac{8}{10} \frac{9}{10} $ 1

1. What is the median of the data set? What does the median represent in the context of the data?

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| *Master Level* |

1. A third restaurant (Restaurant C) tallied a sample of bags of french fries and found the results below.

|  |  |
| --- | --- |
| **Number of fries** | **Frequency** |
| $$75$$ | || |
| $$76$$ | | |
| $$77$$ | || |
| $$78$$ | ||| |
| $$79$$ | ||||| |
| $$80$$ | |||| |
| $$81$$ | | |
| $$82$$ | | |
| $$83$$ |  |
| $$84$$ | ||| |
| $$85$$ | ||| |
| $$86$$ | | |

1. How many bags of fries did they count? \_\_\_\_\_\_\_\_\_\_\_\_\_
2. Which value below represents the median number of fries for the sample of bags from this restaurant?

a) 79

b) 79.5

c) 79 and 80

d) 80

Describe how you found your answer.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1. Describe how you would find the median for a set of data that has 35 values. How would this be different if there were 36 values?

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1. A store on Madison Avenue sells luxury fur coats. The inventory is as follows:

|  |  |
| --- | --- |
| **Cost** | **Number of Coats** |
|  $75 | 8 |
| $80 | 3 |
| $85 | 6 |

What is the median price of the coats at the store? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| *PhD Level* |

1. Identify each of the following statements as true or false. For each claim, provide an example showing why you believe the statement is true or false.
2. The median is always equal to one of the values in the data set.
3. The median is the midpoint between the smallest and largest values in the data set.
4. At most, half of the values in a data set have values less than the median.
5. In a data set with 25 different values, if you change the two smallest values of a data set to smaller values, the median will not be changed.

**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

CFS:

* + Annotations: circle keywords/underline what you’re solving for
	+ Values are ordered from least to greatest
	+ Work is shown
	+ Median is identified & BOXED

**Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**U10L3 EXIT TICKET**

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| Self-assessment | I mastered the learning objective today. | I am almost there.  | Need more practice and feedback. |
| Teacher feedback | You mastered the learning objective today. | You are almost there.  | You need more practice and feedback. |

1. What is the median age for the following data set representing the age of students requesting tickets for a concert?

16, 13, 18, 15, 16, 18, 14, 15, 17

* 1. What is the median number of diseased trees from a data set of diseased trees on 12 city blocks?

11, 3, 3, 4, 6, 12, 9, 3, 8, 8, 8, 1

a) 6

b) 6 and 8

c) 7

d) 10.5

* 1. What does the median represent in the context of the problem?

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