

Name Key
8A: Algebra 1

Date _____
Period _____

Homework

1) On her first two math tests, Renee received grades of 67 and 79. Her mean grade for these two tests was 73. On her third test she received a grade of 91. Renee found the mean of 73 and 91 and said that her mean for the three tests was 82. Do you agree with Renee? Explain why or why not.

Renee is not correct because each grade should count as $\frac{1}{3}$ of her average. The 91 counted as 50% instead of $33\frac{1}{3}\%$

$$\frac{67+79+91}{3} = \frac{237}{3} = \boxed{79} \leftarrow \text{actual average}$$

2) Find the mean of: $5\frac{1}{2}, 2\frac{3}{4}, 7\frac{1}{2}, 5\frac{3}{4}, 4\frac{1}{2}$

$$\frac{26}{5} = \boxed{5\frac{1}{5}}$$

3) Find the median of: 21, 24, 23, 22, 20, 24, 23, 21, 22, 23

20, 21, 21, 22, 22, 23, 23, 23, 24, 24

$$\text{Median} = \boxed{22.5}$$

4) Find the mode for each distribution.

(a) 2, 2, 3, 8, 8,

(b) 2, 2, 8, 8, 8

$$\boxed{2 \text{ and } 8}$$

$$\boxed{8}$$

5) When the data consists of 3, 4, 5, 4, 3, 4, 5, which statement is true?

a) mean > median

b) mean > mode

c) median < mode

d) mean = median

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

$$\text{Mean} = 4 \quad \text{Median} = 4 \quad \text{Mode} = 4$$

6) For which set of data does the median equal to the mode?

a) 3, 3, 4, 5, 6

b) 3, 3, 4, 5

c) 3, 3, 4

d) 3, 4

$$\text{Median} = 3 \\ \text{Mode} = 3$$

7) The mean of three numbers is 31. The second is 1 more than twice the first. The third is 4 less than 3 times the first. Find the numbers.

L	E	S	C
<p>let x = the 1st # $2x+1$ = the 2nd # $3x-4$ = the 3rd #</p>	$\frac{x + 2x + 1 + 3x - 4}{3} = 31$ $3\left(\frac{6x - 3}{3}\right) = (31)3$ $\frac{6x - 3 = 93}{+3 \quad +3} \rightarrow x = 16$ $\frac{6x}{6} = \frac{96}{6}$ $2x + 1 = 33$ $3x - 4 = 44$	<p>The 3 #'s whose mean is 31 are $16, 33, 44$</p>	$\frac{33 + 16 + 44}{3} = 31$ $\frac{93}{3} = 31$ $31 = 31 \checkmark$

8) Andy has grades of 84, 65, and 76 on three math tests. What grade must he obtain on the next tests to have an average of exactly 80 for the four tests?

L	E	S	C
<p>let x = Andy's 4th test grade</p>	$\frac{84 + 65 + 76 + x}{4} = \frac{80}{1}$ $4\left(\frac{225 + x}{4}\right) = (80)4$ $\frac{225 + x = 320}{-225 \quad -225}$ $x = 95$	<p>Andy must get a 95 on her next test to get an average of exactly 80</p>	$\frac{84 + 65 + 76 + 95}{4} = 80$ $\frac{320}{4} = 80$ $80 = 80$

9) Andrew needs a mean (average) score of 88 on four tests to earn a midterm grade of B+. If the mean of his scores for the first three tests was 86, what is the lowest score on a 100-point scale that he can receive on the fourth tests to have a midterm grade of B+?

L	E	S	C
<p>let x = Andrew's 4th test score</p>	$\frac{86 + 86 + 86 + x}{4} = 88$ $4\left(\frac{258 + x}{4}\right) = (88)4$ $\frac{258 + x = 352}{-258 \quad -258}$ $x = 94$	<p>Andrew must receive a 94 on his next test to get a mean score of 88</p>	$\frac{86 + 86 + 86 + 94}{4} = 88$ $\frac{352}{4} = 88$ $88 = 88$

10) In a certain school district, bus service is provided for students living at least $1\frac{1}{2}$ miles from school.

The distances, rounded to the nearest half mile, from school to home for ten students are;

0, $\frac{1}{2}$, $\frac{1}{2}$, 1, 1, 1, 1, $1\frac{1}{2}$, $3\frac{1}{2}$, and 15 miles. Explain why the mean is not a good measure of central tendency to describe the average distance between home and school for these students.

Since the data contains an outlier (of 15), it affects the mean so the mean is NOT a good choice. The median is a good measure

11) Which measure of central tendency would best describe this week's "top pick" for a teenager's favorite movie?

\nearrow
Mode
 "Non-Numeric"