

Name Key Date _____ Period: _____

Mr. Pfeil's Probability class had the following final class grades:

68 75 72 83 96 66 87 91 77

1. What is the range of the data set? 28 2. What is the mean of the data set? 79.4
3. Fill in the table to find the standard deviation of these 9 students.

Grade, x	$(x - \bar{x})$	$(x - \bar{x})^2$
68	-11.4	129.96
75	-4.4	19.36
72	-7.4	54.76
83	3.6	12.96
96	16.6	275.56
66	-13.4	179.56
87	7.6	57.76
91	11.6	134.56
77	-2.4	5.76
		Total = 870.24

Use the formula: $s = \sqrt{\frac{\sum(x - \bar{x})^2}{n-1}} = \boxed{10.4}$

4. If a student who has an average of 48 is added to the list, what will happen to the standard deviation?

S increases to 14.4

A sample of 8 students showed the following fall SAT scores:

820 890 990 1100 1050 1360 800 1200

5. What is the range of the data set? 560
6. What is the mean of the data set? 1026.3

7. Fill in the table to find the standard deviation of these 8 students.

Score, x	$(x - \bar{x})$	$(x - \bar{x})^2$
820	-206.3	42560
890	-136.3	18578
990	-36.3	1317.7
1100	73.7	5431.7
1050	23.7	561.69
1360	333.7	111356
800	-226.3	51212
1200	173.7	30172
		Total = 261187.57

Use the formula: $s = \sqrt{\frac{\sum(x - \bar{x})^2}{n-1}} = \boxed{193.2}$

Use the Empirical Rule.

8. In a study of television viewing habits it was found that a sample watched on average 12 hours of television per week. The standard deviation was found to be 3 hours.

a. Estimate the percentage of people that viewed between 9 and 15 hours of television. 68%

b. 95% of the persons watched between 6 and 18 hours of television.

Use Chebychev's Theorem.

9. Assume we have a distribution of grades that has a mean of 80 and a standard deviation of 8.

a. At least what percentage of grades will fall between 64 and 96? $K=2$, so at least

75%

b. At least what percentage will fall between 68 and 92?

$K=1.5 \rightarrow$ Chebychev's Rule

$1 - \frac{1}{K^2} = 1 - \frac{1}{(1.5)^2} \approx \boxed{55.6\%}$