S.ID.A.2: Dispersion 3

1 Six golfers had the following scores for nine holes of golf:

38, 38, 43, 45, 46, 48

Find the standard deviation of these scores to the *nearest tenth*. How many scores are within one standard deviation of the mean?

2 Beth's scores on the six Earth science tests she took this semester are:

100, 95, 55, 85, 75, 100

For this population, how many scores are within one standard deviation of the mean?

3 During a particular month, a local company surveyed all its employees to determine their travel times to work, in minutes. The data for all 15 employees are shown below.

25	55	40	65	29
45	59	35	25	37
52	30	8	40	55

Determine the number of employees whose travel time is within one standard deviation of the mean.

4 Ten teams competed in a cheerleading competition at a local high school. Their scores were 29, 28, 39, 37, 45, 40, 41, 38, 37, and 48. How many scores are within one population standard deviation from the mean? For these data, what is the interquartile range?

5 From 1984 to 1995, the winning scores for a golf tournament were

276, 279, 279, 277, 278, 278,
280, 282, 285, 272, 279, 278

Using the standard deviation for the sample, S_x, find the percent of these winning scores that fall within one standard deviation of the mean.

6 The average monthly high temperatures, in degrees Fahrenheit, for Binghamton, New York, are given below.

January	28		July	78
February	31		August	76
March	41		September	68
April	53		October	57
May	68		November	44
June	73		December	33

For these temperatures, find, to the *nearest tenth*, the mean, the population standard deviation, and the number of months that fall within one standard deviation of the mean.

7 An electronics company produces a headphone set that can be adjusted to accommodate different-sized heads. Research into the distance between the top of people's heads and the top of their ears produced the following data, in inches:

4.5, 4.8, 6.2, 5.5, 5.6, 5.4, 5.8,
6.0, 5.8, 6.2, 4.6, 5.0, 5.4, 5.8

The company decides to design their headphones to accommodate three standard deviations from the mean. Find, to the *nearest tenth,* the mean, the standard deviation, and the range of distances that must be accommodated.

8 On a math exam, the scores of ten students were

66, 81, 95, 97, 86, 58, 76, 73, 88, 80

Find the mean. Find the standard deviation to the *nearest tenth*. How many scores from the given data differ from the mean by more than one standard deviation?

9 Mel took 12 tests in Sequential Math III and received the following grades:

85, 89, 89, 89, 90, 90, 90, 92, 92, 96, 96, 100

Find, to the *nearest tenth*, the standard deviation. What percent of the test grades are *more than* one standard deviation above the mean?

S.ID.A.2: Dispersion 3
Answer Section

1 ANS:
3.8, 3

REF: 010341siii

2 ANS:
5. $\bar{x} = 85$ and $\sigma_x \approx 16$. The relevant range is 69-101. 5 scores fall within this range.

REF: 080625b

3 ANS:
$\sigma_x = 14.9$. $\bar{x} = 40$. There are 8 scores between 25.1 and 54.9.

REF: 061237a2

4 ANS:
$\sigma_x \approx 5.9$ 6 scores are within a population standard deviation of the mean. $Q_3 - Q_1 = 41 - 37 = 4$
$\bar{x} \approx 38.2$

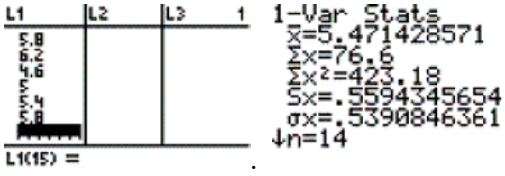
REF: 061338a2

5 ANS:
75. $\bar{x} \approx 278.6$ and $S_x \approx 3.1$. The relevant range is 275.5-281.7. 9/12 scores fall within this range, or 75%.

REF: 010529b

6 ANS:
54.2, 17.6, 6. The relevant range is 36.6-71.8. 6 temperatures fall within this range.

REF: 010927b

7 ANS:


5.5, .5, $4 \le d \le 7$.

REF: 060227b

8 ANS:
80, 11.7, 4

REF: 068842siii

9 ANS:
3.9; 25%

REF: 010142siii