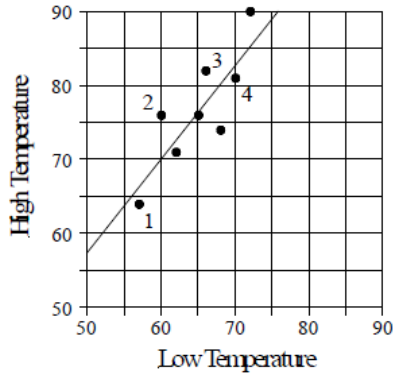


Practice Test

Statistics

Questions 1-3 refer to the following information.



The graph above is a scatter plot with 8 points, each representing the low temperature and high temperature of 8 days in September in a certain city. Both the low temperatures and high temperatures are measured in degrees Fahrenheit. The line of best fit for the data is also shown.

1

Based on the line of best fit for the data shown, how many degrees does the high temperature increase when the low temperature increases by one degree?

- A) 0.9
- B) 1.3
- C) 1.6
- D) 1.8

2

What is the predicted high temperature of the day when the low temperature is 58?

- A) 65
- B) 68
- C) 71
- D) 74

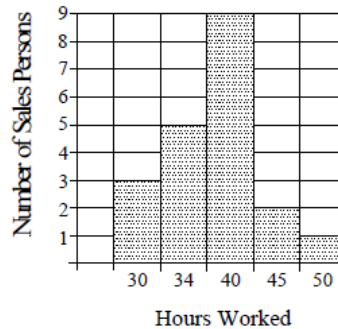
3

Among the four days marked 1, 2, 3, and 4 in the scatter plot, on which day is the difference between the high temperature and the low temperature minimal?

- A) Day 1
- B) Day 2
- C) Day 3
- D) Day 4

4

Number of Hours Worked by the 20 Salespersons in Company G



Based on the histogram above, what is the average number of hours worked by the 20 salespersons in Company G?

- A) 36
- B) 37
- C) 38
- D) 39

Questions 5 and 6 refer to the following information.

Frequency Distribution for List *A*

Number	0	4	5	6
Frequency	8	10	12	10

Frequency Distribution for List *B*

Number	7	10	11	15
Frequency	10	8	10	12

The table above shows the frequency distribution of two lists. List *A* and list *B* each contain 40 numbers.

5

What is the difference between the average of the numbers in list *B* and the average of the numbers in list *A*?

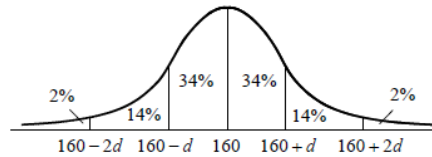
- A) 6.5
- B) 7
- C) 7.5
- D) 8

6

List *C* contains 80 numbers: the 40 numbers in list *A* and the 40 numbers in list *B*. Let m be the average of 80 numbers in list *C* and M be the median of 80 numbers in list *C*. What is the value of $m - M$?

- A) 1
- B) 1.5
- C) 2
- D) 2.5

7



The figure above shows a standard normal distribution with mean of 160 and standard deviation d , including approximate percents of the distribution corresponding to the regions shown. If the value 148 is at the 12th percentile of the distribution, which of the following is the best estimate of the standard deviation d of the distribution?

- A) 5
- B) 10
- C) 15
- D) 20

8

The tables below give the distribution of ratings of two different laptops by 100 people each.

Ratings of Laptop *A* by 100 Reviewers

Ratings	5	4	3	2	1
Frequency	28	45	11	7	9

Ratings of Laptop *B* by 100 Reviewers

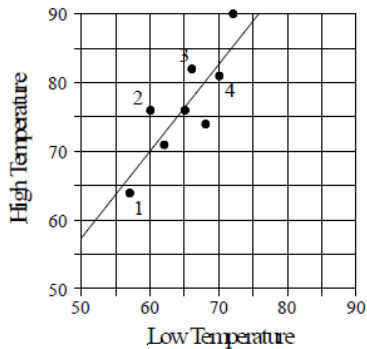
Ratings	5	4	3	2	1
Frequency	22	24	18	20	16

Which of the following is true about the data shown for the ratings of the two laptops?

- A) The standard deviation of the ratings of laptop *A* is larger.
- B) The standard deviation of the ratings of laptop *B* is larger.
- C) The standard deviation of the two ratings are the same.
- D) The standard deviation of the two ratings cannot be determined with the data provided.

Answers Statistics

1. B



The slope of the line of best fit is the value of the average increase in high temperature when the low temperature increases by one degree.

Using approximate values found along the line of best fit $(60, 70)$ and $(76, 90)$, the approximate

slope can be calculated as $\frac{90 - 70}{76 - 60} = 1.25$.

Of the choices given, 1.3 is the best estimation. Therefore, the high temperature increases 1.3 degrees when the low temperature increases by one degree.

2. B

When the low temperature is 58, the graph shows that the high temperature is between 65 and 70, but closer to 70. Of the choices given, 68 is the best estimation.

3. A

In Day 1, the approximate high temperature is 64 and the approximate low temperature is 57. The difference is $64 - 57$, or 7 degrees.

In Day 2, the approximate high temperature is 76 and the approximate low temperature is 60. The difference is $76 - 60$, or 16 degrees.

In Day 3, the approximate high temperature is 82 and the approximate low temperature is 67. The difference is $82 - 67$, or 15 degrees.

In Day 4, the approximate high temperature is 81 and the approximate low temperature is 70. The difference is $81 - 70$, or 11 degrees.

The difference between the high and the low temperature was minimum on Day 1.

4. C

3 people worked for 30 hours.
5 people worked for 34 hours.
9 people worked for 40 hours.
2 people worked for 45 hours.
1 person worked for 50 hours.

Average number of hours worked

$$= \frac{\text{total number of hours}}{\text{total number of people}}$$

$$= \frac{3 \cdot 30 + 5 \cdot 34 + 9 \cdot 40 + 2 \cdot 45 + 1 \cdot 50}{20}$$

$$= \frac{760}{20} = 38$$

5. B

Frequency Distribution for List A

Number	0	4	5	6
Frequency	8	10	12	10

Frequency Distribution for List B

Number	7	10	11	15
Frequency	10	8	10	12

Average of the numbers in List B

$$= \frac{10 \times 7 + 8 \times 10 + 10 \times 11 + 12 \times 15}{40} = \frac{440}{40} = 11$$

Average of the numbers in List A

$$= \frac{8 \times 0 + 10 \times 4 + 12 \times 5 + 10 \times 6}{40} = \frac{160}{40} = 4$$

Therefore, the difference between the average of the two lists is $11 - 4$, or 7.

Answers Statistics

6. A

Because the lists A and B each contain 40 numbers, the average of the numbers in list C is the average of the individual averages of the numbers in lists A and B . Thus the average

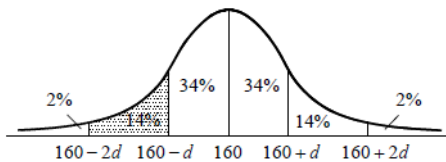
of the numbers in list C is $\frac{4+11}{2}$, or 7.5.

If you look at the numbers in the two lists, you will see that the 40 numbers in list A are all less than or equal to 6, and the 40 numbers in list B are all greater than or equal to 7. Thus the two middle numbers in list C are 6 and 7, and the

average of these numbers is $\frac{6+7}{2}$, or 6.5.

Therefore, $m = 7.5$ and $M = 6.5$, and $m - M = 7.5 - 6.5 = 1$.

7. B



If the value 148 is at the 12th percentile of the distribution, the value must be in the shaded region which is in between $160 - d$ and $160 - 2d$.

If $d = 5$, $160 - d = 160 - 5 = 155$ and $160 - 2d = 160 - 2 \cdot 5 = 150$, which does not include 148.

If $d = 10$, $160 - d = 160 - 10 = 150$ and $160 - 2d = 160 - 2 \cdot 10 = 140$, which includes 148.

If $d = 15$, $160 - d = 160 - 15 = 145$ and $160 - 2d = 160 - 2 \cdot 15 = 130$, which does not include 148.

If $d = 20$, $160 - d = 160 - 20 = 140$ and $160 - 2d = 160 - 2 \cdot 20 = 120$, which does not include 148.

Choice B is correct.

8. B

Ratings of Laptop A by 100 Reviewers

Ratings	5	4	3	2	1
Frequency	28	45	11	7	9

Ratings of Laptop B by 100 Reviewers

Ratings	5	4	3	2	1
Frequency	22	24	18	20	16

The standard deviation is a measure of how far the data set values are from the mean. In the data set for laptop A , the large majority of the data are in two of the five possible values, which are the two values closest to the mean. In the data set for laptop B , the data are more spread out, thus by observation, the data for laptop B have a larger standard deviation.

Choice B is correct.