

**Statistics Review**

**Multiple Choice - Use the calculator to complete as many multiple choice questions as possible. 1 Variable Statistics!**

*Identify the choice that best completes the statement or answers the question.*

- 1 If the mean on a standardized test with a normal distribution is 54.3 and the standard deviation is 4.6, what is the best approximation of the percent of the scores that fall between 54.3 and 63.5?
  - 1) 34
  - 2) 47.5
  - 3) 68
  - 4) 95

- 2 The table below shows a cumulative frequency distribution of runners' ages.

**Cumulative Frequency Distribution of Runners' Ages**

Age Group	Total
20-29	8
20-39	18
20-49	25
20-59	31
20-69	35

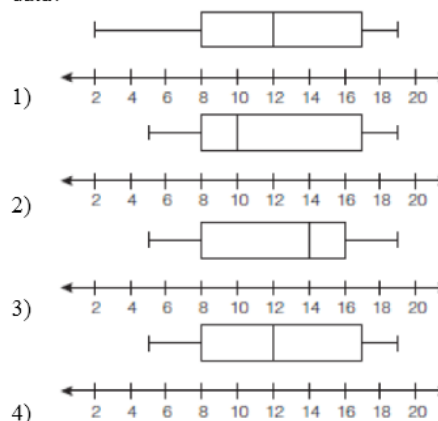
According to the table, how many runners are in their forties?

- 1) 25
  - 2) 10
  - 3) 7
  - 4) 6
- 3 If the amount of time students work in any given week is normally distributed with a mean of 10 hours per week and a standard deviation of 2 hours, what is the probability a student works between 8 and 11 hours per week?
    - 1) 34.1%
    - 2) 38.2%
    - 3) 53.2%
    - 4) 68.2%

- 4 Which correctly compares the mean and median of the set of data shown in the accompanying table?

$x_i$ measure	$f_i$ frequency
60	2
75	4
80	1
90	3

- 1) The mean and median are equal.
  - 2) The mean exceeds the median by 2.
  - 3) The median exceeds the mean by 2.
  - 4) The mean exceeds the median by 2.5.
- 5 The data set 5, 6, 7, 8, 9, 9, 9, 10, 12, 14, 17, 17, 18, 19, 19 represents the number of hours spent on the Internet in a week by students in a mathematics class. Which box-and-whisker plot represents the data?

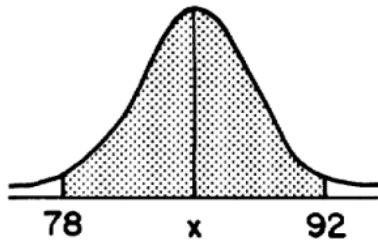


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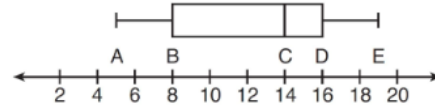
- 6 Brianna's score on a national math assessment exceeded the scores of 95,000 of the 125,000 students who took the assessment. What was her percentile rank?
- 1) 6
  - 2) 24
  - 3) 31
  - 4) 76

- 7 In the accompanying diagram, the shaded area represents approximately 95% of the scores on a standardized test. If these scores ranged from 78 to 92, which could be the standard deviation?



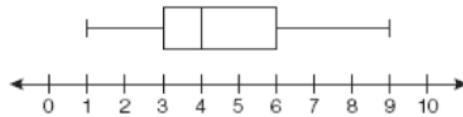
- 1) 3.5
  - 2) 7.0
  - 3) 14.0
  - 4) 20.0
- 8 On a standardized test, the mean is 76 and the standard deviation is 4. Between which two scores will approximately 68% of the scores fall?
- 1) 68 and 84
  - 2) 72 and 80
  - 3) 74 and 78
  - 4) 76 and 80
- 9 The weights of all the students in grade 9 are arranged from least to greatest. Which statistical measure separates the top half of this set of data from the bottom half?
- 1) mean
  - 2) mode
  - 3) median
  - 4) average

- 10 The box-and-whisker plot shown below represents the number of magazine subscriptions sold by members of a club.



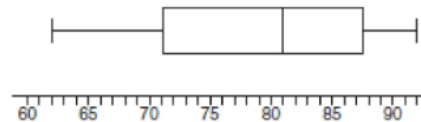
Which statistical measures do points  $B$ ,  $D$ , and  $E$  represent, respectively?

- 1) minimum, median, maximum
  - 2) first quartile, median, third quartile
  - 3) first quartile, third quartile, maximum
  - 4) median, third quartile, maximum
- 11 A movie theater recorded the number of tickets sold daily for a popular movie during the month of June. The box-and-whisker plot shown below represents the data for the number of tickets sold, in hundreds.



Which conclusion can be made using this plot?

- 1) The second quartile is 600.
  - 2) The mean of the attendance is 400.
  - 3) The range of the attendance is 300 to 600.
  - 4) Twenty-five percent of the attendance is between 300 and 400.
- 12 The accompanying diagram shows a box-and-whisker plot of student test scores on last year's Mathematics A midterm examination.



What is the median score?

- 1) 62
- 2) 71
- 3) 81
- 4) 92

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- 13 On a standardized test, Cathy had a score of 74, which was exactly 1 standard deviation below the mean. If the standard deviation for the test is 6, what is the mean score for the test?

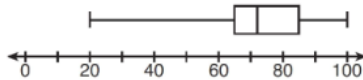
- 1) 68
- 2) 71
- 3) 77
- 4) 80

- 14 Mayken collected data about the size of the honors classes in her school building. This set of data is shown in the accompanying table.

Class Size	Frequency
8	1
10	3
14	2

Which statement about the range of this sample is true?

- 1) range = mean
  - 2) range > mean
  - 3) range < mean
  - 4) range < standard deviation
- 15 The box-and-whisker plot below represents the results of tests scores in a math class.



What do the scores 65, 85, and 100 represent?

- 1)  $Q_1$ , median,  $Q_3$
  - 2)  $Q_1$ ,  $Q_3$ , maximum
  - 3) median,  $Q_1$ , maximum
  - 4) minimum, median, maximum
- 16 From January 3 to January 7, Buffalo recorded the following daily high temperatures:  $5^\circ$ ,  $7^\circ$ ,  $6^\circ$ ,  $5^\circ$ , and  $7^\circ$ . Which statement about the temperatures is true?
- 1) mean = median
  - 2) mean = mode
  - 3) median = mode
  - 4) mean < median

- 17 The cumulative frequency table below shows the length of time that 30 students spent text messaging on a weekend.

Minutes Used	Cumulative Frequency
31–40	2
31–50	5
31–60	10
31–70	19
31–80	30

Which 10-minute interval contains the first quartile?

- 1) 31 – 40
  - 2) 41 – 50
  - 3) 51 – 60
  - 4) 61 – 70
- 18 The test scores for 10 students in Ms. Sampson's homeroom were 61, 67, 81, 83, 87, 88, 89, 90, 98, and 100. Which frequency table is accurate for this set of data?

1) 

Interval	Frequency
61–70	2
71–80	2
81–90	7
91–100	10

2) 

Interval	Frequency
61–70	2
71–80	2
81–90	8
91–100	10

3) 

Interval	Frequency
61–70	2
71–80	0
81–90	8
91–100	10

4) 

Interval	Frequency
61–70	2
71–80	0
81–90	6
91–100	2

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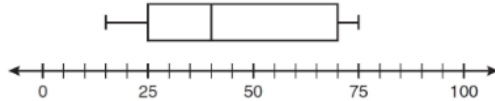
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- 19 Which statement is true about the data set 3, 4, 5, 6, 7, 7, 10?
- 1) mean = mode
  - 2) mean > mode
  - 3) mean = median
  - 4) mean < median

- 20 Alex earned scores of 60, 74, 82, 87, 87, and 94 on his first six algebra tests. What is the relationship between the measures of central tendency of these scores?
- 1) median < mode < mean
  - 2) mean < mode < median
  - 3) mode < median < mean
  - 4) mean < median < mode

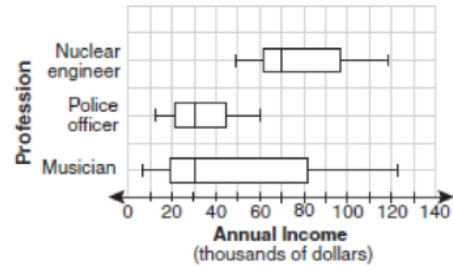
- 21 What is the range for the following data?  
52, 32, 61, 82, 63
- 1) 50
  - 2) 58
  - 3) 11
  - 4) 61

- 22 What is the range of the data represented in the box-and-whisker plot shown below?



- 1) 40
  - 2) 45
  - 3) 60
  - 4) 100
- 23 In a set of scores has a normal distribution and the mean is 200, which score has the greatest probability of being chosen at random?
- 1) 230
  - 2) 228
  - 3) 176
  - 4) 168

- 24 The accompanying box-and-whisker plots can be used to compare the annual incomes of three professions.



Based on the box-and-whisker plots, which statement is true?

- 1) The median income for nuclear engineers is greater than the income of all musicians.
  - 2) The median income for police officers and musicians is the same.
  - 3) All nuclear engineers earn more than all police officers.
  - 4) A musician will eventually earn more than a police officer.
- 25 Which statement is true about the data set 4, 5, 6, 6, 7, 9, 12?
- 1) mean = mode
  - 2) mode = median
  - 3) mean < median
  - 4) mode > mean
- 26 What is the median of the set of data shown in the table below?

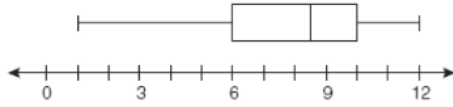
Measure ( $x_i$ )	Frequency ( $f_i$ )
4	15
5	8
6	13
7	10

- 1) 15
- 2) 10.5
- 3) 5.5
- 4) 4

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- 27 What is the value of the third quartile shown on the box-and-whisker plot below?



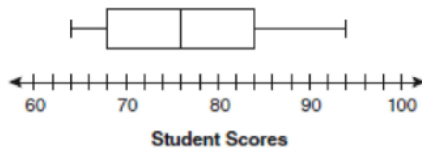
- 1) 6
- 2) 8.5
- 3) 10
- 4) 12

- 28 Using the data in the accompanying table, which statement is true?

measure ( $x_i$ )	frequency ( $f_i$ )
8	1
10	3
14	2

- 1) mean = median
- 2) mean > median
- 3) mean < mode
- 4) median > mode

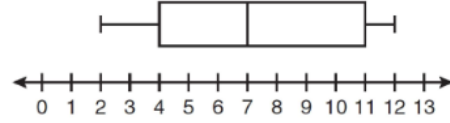
- 29 The box-and-whisker plot below represents students' scores on a recent English test.



What is the value of the upper quartile?

- 1) 68
- 2) 76
- 3) 84
- 4) 94

- 30 Based on the box-and-whisker plot below, which statement is false?



- 1) The median is 7.
- 2) The range is 12.
- 3) The first quartile is 4.
- 4) The third quartile is 11.

- 31 What is the mode of the data shown in the following table?

Measure ( $x_i$ )	Frequency ( $f_i$ )
5	3
12	2
13	5
18	4

- 1) 12
- 2) 12.5
- 3) 13
- 4) 51.5

- 32 What is the mean of the data in the accompanying table?

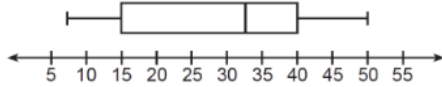
Scores ( $x_i$ )	Frequency ( $f_i$ )
25	3
20	2
11	5
10	4

- 1) 11
- 2) 14.5
- 3) 15
- 4) 16

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- 33 The box-and-whisker plot below represents the ages of 12 people.



What percentage of these people are age 15 or older?

- 1) 25
  - 2) 35
  - 3) 75
  - 4) 85
- 34 The table below displays the results of a survey regarding the number of pets each student in a class has. The average number of pets per student in this class is 2.

Number of Pets	0	1	2	3	4	5
Number of Students	4	6	10	0	$k$	2

What is the value of  $k$  for this table?

- 1) 9
  - 2) 2
  - 3) 8
  - 4) 4
- 35 The freshman class held a canned food drive for 12 weeks. The results are summarized in the table below.

Canned Food Drive Results

Week	1	2	3	4	5	6	7	8	9	10	11	12
Number of Cans	20	35	32	45	58	46	28	23	31	79	65	62

Which number represents the second quartile of the number of cans of food collected?

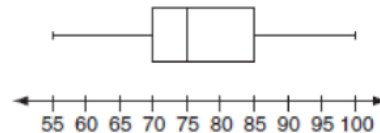
- 1) 29.5
- 2) 30.5
- 3) 40
- 4) 60

- 36 The number of minutes students took to complete a quiz is summarized in the table below.

Minutes	14	15	16	17	18	19	20
Number of Students	5	3	$x$	5	2	10	1

If the mean number of minutes was 17, which equation could be used to calculate the value of  $x$ ?

- 1)  $17 = \frac{119+x}{x}$
  - 2)  $17 = \frac{119+16x}{x}$
  - 3)  $17 = \frac{446+x}{26+x}$
  - 4)  $17 = \frac{446+16x}{26+x}$
- 37 On a mathematics quiz with a normal distribution, the mean is 8. If the standard deviation is 0.5, what is the best approximation of the percentage of grades that lie between 7 and 9?
- 1) 5%
  - 2) 34%
  - 3) 68%
  - 4) 95%
- 38 The accompanying box-and-whisker plot represents the scores earned on a science test.



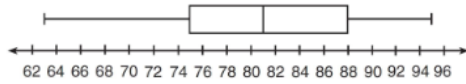
What is the median score?

- 1) 70
- 2) 75
- 3) 77
- 4) 85

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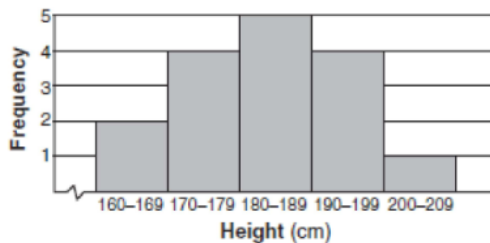
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- 39 The box-and-whisker plot below represents a set of grades in a college statistics class.



Which interval contains exactly 50% of the grades?

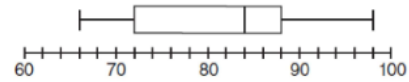
- 1) 63-88
  - 2) 63-95
  - 3) 75-81
  - 4) 75-88
- 40 The accompanying histogram shows the heights of the students in Kyra's health class.



What is the total number of students in the class?

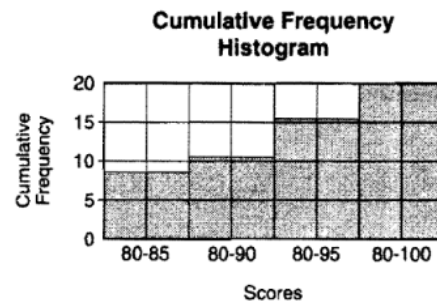
- 1) 5
  - 2) 15
  - 3) 16
  - 4) 209
- 41 Melissa's test scores are 75, 83, and 75. Which statement is true about this set of data?
- 1) mean < mode
  - 2) mode < median
  - 3) mode = median
  - 4) mean = median
- 42 The ages of five children in a family are 3, 3, 5, 8, and 18. Which statement is true for this group of data?
- 1) mode > mean
  - 2) mean > median
  - 3) median = mode
  - 4) median > mean

- 43 The box-and-whisker plot below represents the math test scores of 20 students.



What percentage of the test scores are less than 72?

- 1) 25
  - 2) 50
  - 3) 75
  - 4) 100
- 44 The accompanying histogram shows the scores of students on a Math A test.



How many students have scores of 96 to 100?

- 1) 55
  - 2) 20
  - 3) 5
  - 4) 4
- 45 In a standardized test with a normal distribution of scores, the mean is 63 and the standard deviation is 5. Which score can be expected to occur most often?
- 1) 45
  - 2) 55
  - 3) 65
  - 4) 74