

Name: _____ Date: _____

1. If a student's rank in a class of 400 students is 304, find the student's percentile rank.

A) 24 B) 25 C) 23 D) 26

2. Find the value for the correlation coefficient r .

x	10	8	7	12	14	5
y	20	19	17	25	28	9

A) 0.551 B) 0.986 C) 0.874 D) 0.763

3. The average amount customers at a certain grocery store spend yearly is \$671.70. Assume the variable is normally distributed. If the standard deviation is \$75.53, find the probability that a randomly selected customer spends between \$599.19 and \$883.94.

A) 0.830 = 83.0% B) 0.166 = 16.6% C) 0.953 = 95.3% D) 0.154 = 15.4%

4. Find the standard deviation.

33 9 3 9 32 46

A) 249.33 B) 299.2 C) 880 D) 17.30

5. For the 20 test scores shown, find the percentile rank for a score of 86.

75 63 92 74 86 50 77 82 98 65 71 89 75 66 87 59 70 83
91 73

A) 30th percentile B) 70th percentile C) 75th percentile D) 80th percentile

6. Find the area under the normal distribution curve between $z = -1.34$ and $z = 3.24$.

A) 0.410 B) 0.499 C) 0.089 D) 0.909

7. Which of the following is *not* a property of a normal distribution?
- A) The mean, median, and mode are equal. C) It is continuous.
 B) It is bimodal (i.e., it has two modes). D) It never touches the x -axis.
8. Find a z value to the left of the mean so that 91.0% of the distribution lies to the right of it.
- A) 0.410 B) -1.34 C) 1.34 D) -0.410
9. Use the equation of the regression line to predict y when $x = 20$.
- | | | | | | | |
|-----|----|----|----|----|----|----|
| x | 5 | 8 | 6 | 10 | 12 | 9 |
| y | 18 | 20 | 15 | 25 | 30 | 25 |
- A) 40 B) 45.5 C) 48.5 D) 50
10. Fran's percentile rank on an exam in a class of 500 is 85. Kelly's class rank is 60. Who is ranked higher?
- A) Fran B) Kelly
11. Helga scored in the 15th percentile rank on an exam. If 500 students took the exam, how many students scored lower than Helga?
- A) 76 B) 75 C) 74 D) 77
12. Find the equation of the regression line.
- | | | | | | | |
|-----|----|----|----|----|----|----|
| x | 12 | 14 | 10 | 9 | 15 | 8 |
| y | 29 | 35 | 28 | 23 | 36 | 18 |
- A) $y = -2.4 + 1.2x$ B) $y = 2.4 + 1.2x$ C) $y = -1.2 + 2.4x$ D) $y = 1.2 + 2.4x$
13. The area under a normal distribution curve that lies within one standard deviation of the mean is approximately _____.
- A) 65% B) 68% C) 95% D) 99.7%

14. Determine whether a correlation coefficient of $r = 0.313$ is significant at the 5% level for a sample size of 60.

A) r is not significant at 5%. B) r is significant at 5%.

15. Find the mean.

58 3 7 26 5 1 1 12 2 6

A) 2 B) 12.1 C) 29.5 D) 5.5

16. Find Q_1 , Q_2 , and Q_3 for the data set below.

5.4 2.0 6.8 3.1 2.9 4.7 2.1 5.0 1.9 3.4

A) $Q_1 = 2.1$, $Q_2 = 3.25$, $Q_3 = 5.0$ C) $Q_1 = 2.1$, $Q_2 = 3.4$, $Q_3 = 5.0$
 B) $Q_1 = 2.05$, $Q_2 = 3.1$, $Q_3 = 5.2$ D) $Q_1 = 2.05$, $Q_2 = 3.25$, $Q_3 = 5.2$

17. The average hourly wage of employees of a certain company is \$11.62. Assume the variable is normally distributed. If the standard deviation is \$3.09, find the probability that a randomly selected employee earns less than \$8.65.

A) $0.345 = 34.5\%$ B) $0.313 = 31.3\%$ C) $0.332 = 33.2\%$ D) $0.436 = 43.6\%$

18. Find the mode.

5 8 2 3 10 4 28 6 17 22

A) 7 B) 10.5 C) 8 D) No mode

19. Find the value for r and test the significance of r at the 5% level and at the 1% level.

x	21	14	18	23
y	9	1	5	11

A) $r = 0.995$. r is significant not significant at the 5% level or the 1% level
 B) $r = 0.998$. r is significant at the 5% level, but not at the 1% level
 C) $r = 0.995$. r is significant at the 5% level, but not at the 1% level
 D) $r = 0.998$. r is significant at the 5% level and the 1% level

20. Find the value for the correlation coefficient r .

x	5	1	4	2	3
y	4	2	11	8	9

- A) 0.244 B) 0.190 C) 0.320 D) 0.299

21. Use the equation of the regression line to predict y when $x = 8$.

x	2	4	3	5	1
y	15	23	20	28	14

- A) 40.4 B) 36.1 C) 41.6 D) 38

22. How is a systematic sample collected?

- A) The population is divided into groups where the members of each group have similar characteristics. Members from each group are selected at random.
 B) An intact group of subjects that represent the population is selected.
 C) Subjects in the population are numbered, then every k th member is selected. The starting number is random.
 D) Subjects in the population are numbered, and then they are selected according to corresponding random numbers.

23. Which statement is true for a statistical study?

- A) The population is a subset of the sample.
 B) The sample is a subset of the population.

24. Find the median.

13 49 33 36 37 5 58 31

- A) 34.5 B) 32.75 C) 33 D) 36

25. Find the equation of the regression line.

x	10	8	7	12	14	5
y	20	19	17	25	28	9

- A) $y = 2.5 + 2.7x$ B) $y = 2.7 + 2.5x$ C) $y = 1.7 + 1.9x$ D) $y = 1.9 + 1.7x$

Answer Key

1. A
2. B
3. A
4. D
5. B
6. D
7. B
8. B
9. B
10. B
11. B
12. D
13. B
14. B
15. B
16. A
17. C
18. D
19. D
20. D
21. D
22. C
23. B
24. A
25. C