

- 1.) Which of the following statements is correct?
(a) The mean of a data set is a measure of dispersion.
(b) The standard deviation is a measure of dispersion.
(c) The range is a measure of central tendency.
(d) The median is a measure of dispersion.
- 2.) Which of the following types of graphs would NOT be appropriate for quantitative data?
(a) Dot plot (b) Histogram (c) Polygonal (d) Pareto

- 3.) Given the data 23, 45, 50, 70, 92, 80, 50, 31, the third quartile is
(a) 70 (b) 6 (c) 6.5 (d) 75

- 4.) Given the data 23, 70, 32, 88, 50, 31, the **median** is
(a) 32 (b) 41 (c) 60 (d) 49

- 5.) Find the median for the following frequency distribution:

x	2	3	4	5
f	5	10	15	30

- (a) 3 (b) 3.5 (c) 4 (d) 4.5
- 6.) Let x be normal with $\sigma = 12$. We want to find a 96% confidence interval for μ , with the maximum error of the estimate 5, or less. Find the minimum sample size, n , needed to achieve this. (a) 5 (b) 18 (c) 24 (d) 25
- 7.) A sample has mean 5.2 and standard deviation 1.5. If 4 is multiplied by each number in the sample, the new set of data has
(a) mean 9.2, S.D. 1.5 (b) mean 9.2, S.D. 6.0 (c) mean 20.8, S.D. 6.0
(d) mean 20.8, S.D. 1.5

8.) Find a value of k , so that by Chebyshev's Theorem, at least 88% of the data must be within k standard deviations of the mean.

- (a) $k = 2.887$ (b) $k = 8.333$ (c) $k = 1.291$ (d) $k = 0.12$

9.) 25% of the trees in a forest are diseased. 70% of the trees are over 10 feet. 90% are diseased OR over 10 feet.

What percent of the trees are diseased AND over 10 feet?

- (a) 5% (b) 10% (c) 15% (d) 0%

10.) 60% of our parts come from supplier A, 40% from supplier B. 3% of A parts are defective, and 5% of B parts are defective. The overall rate of defectives is

- (a) 3.8% (b) 38.0% (c) 4.0% (d) 50.0%

11.) 60% of our parts come from supplier A, 40% from supplier B. 3% of A parts are defective, and 5% of B parts are defective. The probability a defective part is from supplier B is

- (a) $1/19$ (b) $10/19$ (c) $1/20$ (d) $19/100$

12.) Find the standard deviation for the following probability distribution:

x	1	3	4	5
p	0.3	0.4	0.1	0.2

- (a) 2.09 (b) 1.4457 (c) 2.9 (d) 10.5

13.) For the binomial distribution with $n = 46$ and $p = 1/4$, which values of x , the number of successes, lie between $\mu - 2\sigma$ and $\mu + 2\sigma$?

- (a) all (b) 6 through 17, only (c) 9 through 14, only (d) 11 through 12, only.

14.) For the binomial distribution with $n = 46$ and $p = 1/4$, find the probability of 11 successes.

- (a) 0.13479 (b) 0.87175 (c) 0.13326 (d) 0.913996

- 15.) For the binomial distribution with $n = 46$ and $p = 1/4$, find the probability of 10 to 20 successes, inclusive. (a) 0.62146 (b) 0.74502 (c) 0.89429 (d) 0.913996
- 16.) A machine produces gaskets whose thickness is normally distributed with mean 2.50 mm, and standard deviation 0.04 mm. Find the probability that the thickness of a randomly chosen gasket exceeds 2.515 mm.
(a) 0.70766 (b) 0.35383 (c) 0.11784 (d) 0.23568
- 17.) A machine produces gaskets whose thickness is normally distributed with mean 2.50 mm, and standard deviation 0.04 mm. Find the probability that the mean thickness of a sample of size 10 exceeds 2.515 mm.
(a) 0.70766 (b) 0.35383 (c) 0.11784 (d) 0.23568
- 18.) A machine bakes loaves whose size is normally distributed with standard deviation 0.015 oz. A sample of size 25 has a mean size of 16.2 oz. Find the 90% confidence interval for the mean size of all loaves.
(a) 15.375 oz to 17.025 oz (b) 15.870 oz to 16.530 oz
(c) 16.035 oz to 17.365 oz (d) 15.975 oz to 16.425 oz
- 19.) $C(11, 6)$ is (a) 332,640 (b) 120 (c) 720 (d) 462
- 20.) An urn contains 6 red marbles, 5 white and 7 blue. One at a time is drawn, without replacement. Find the probability of a red marble on the third draw, after one white and one blue. (a) $3/8$ (b) $1/3$ (c) $5/16$ (d) $1/4$
- 21.) Given the data 23, 45, 50, 70, 92, 80, 50, 31, the **depth** of the third quartile is
(a) 70 (b) 6 (c) 6.5 (d) 75
- 22.) A machine produces gaskets which are to be between 2.46 mm and 2.54 mm in thickness. Assume the thickness of the gaskets is normally distributed with mean 2.50 mm. What should the standard deviation be so that only 1% of the gaskets fail be the specified thickness?
(a) 0.01553 mm (b) 0.01719 mm (c) 0.02326 mm (d) 0.02576 mm

- 23.) A machine produces bolts whose length is normally distributed. A sample of size 10 has a mean length of 9.00 cm, and sample standard deviation of 0.05 cm. Find the 90% confidence interval for the mean length of all bolts.
- (a) 8.971 cm to 9.029 cm (b) 8.918 cm to 8.082 cm
(c) 8.733 cm to 9.267 cm (d) 8.974 cm to 9.026 cm
- 24.) For a sample of size 40, find the right-hand chi-square critical value for a 94% confidence interval. (a) 60.6 (b) 64.5 (c) 61.8 (d) 65.7
- 25.) For a sample of size 41, find the right-hand chi-square critical value for a 95% confidence interval. (a) 55.758 (b) 59.342 (c) 60.561 (d) 56.942
- 26.) In sampling for a 96% confidence interval for the population proportion, we want the margin of error to be under 0.035. What should the minimum sample size be if no estimate is available for the population proportion?
(a) 3444 (b) 861 (c) 860 (d) 3443