

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Use summary statistics to answer the question.

- 1) Here are the summary statistics for the monthly payroll for an accounting firm: lowest salary = \$ 15,000, mean salary = \$35,000, median = \$25,000, range = \$60,000, IQR = \$30,000, first quartile = \$17,500, standard deviation = \$20,000. 1) _____

Do you think the distribution of salaries is symmetric, skewed to the left, or skewed to the right?

Explain why.

- A) Symmetric, mean is higher than median.
- B) Skewed to the left, mean is higher than median.
- C) Skewed to the left; mean is lower than median.
- D) Skewed to the right; mean is higher than median.
- E) Skewed to the right, mean is lower than median.

- 2) Here are the summary statistics for the monthly payroll for an accounting firm: lowest salary = \$30,000, mean salary = \$70,000, median = \$50,000, range = \$120,000, IQR = \$60,000, first quartile = \$35,000, standard deviation = \$40,000. 2) _____

Between what two values are the middle 50% of the salaries found?

- A) \$35,000 and \$75,000
- B) \$30,000 and \$150,000
- C) \$35,000 and \$95,000
- D) \$70,000 and \$50,000
- E) \$35,000 and \$60,000

Find the number of standard deviations from the mean. Round to the nearest hundredths.

- 3) The mean test score on the Chapter 7 mathematics test was 71 with a standard deviation of 13. How many standard deviations from the mean is a test score of 87? 3) _____
- A) About 0.67 standard deviations below the mean
 - B) About 1.23 standard deviations above the mean
 - C) About 1.23 standard deviations below the mean
 - D) About 0.82 standard deviations above the mean
 - E) About 0.67 standard deviations above the mean

Pick the appropriate standard deviation.

- 4) The average number of pounds of sugar a person eats per year is 5. Find an appropriate standard deviation. 4) _____
- A) 1 pound
 - B) 0.1 pounds
 - C) 4 pounds
 - D) 10 pounds
 - E) 5 pounds

Find the percent of a standard Normal model found in the given region. Round to the nearest hundredth of a percent.

- 5) $0 < z < 3.01$ 5) _____
- A) 50.13%
 - B) 49.87%
 - C) 99.87%
 - D) 43.67%
 - E) 12.17%

Solve the problem. Round to the nearest tenth.

6) For a recent English exam, use the Normal model $N(73, 9.2)$ to find the score that represents the 30th percentile.

6) _____

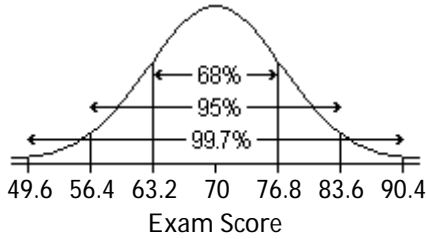
- A) 77.8 B) 61.2 C) 82.2 D) 68.2 E) 63.8

Draw the Normal model and use the 68-95-99.7 Rule to answer the question.

7) An English instructor gave a final exam and found a mean score of 70 points and a standard deviation of 6.8 points. Assume that a Normal model can be applied. Draw and label the Normal model for the exam scores. Describe the scores of the top 2.5%.

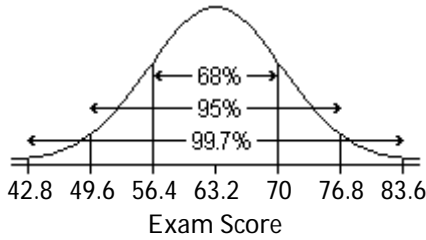
7) _____

A)



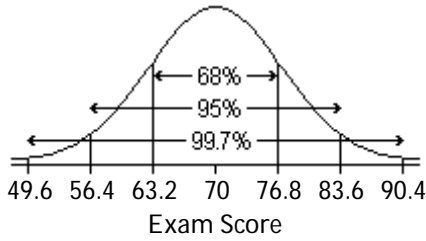
; Higher than 76.8 points

B)



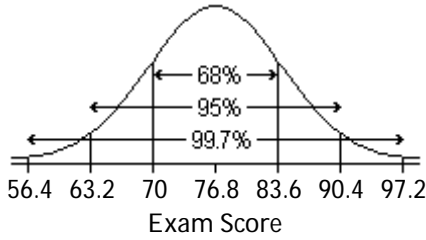
; Higher than 76.8 points

C)



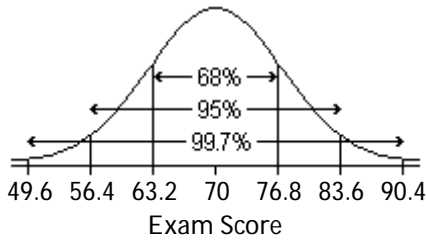
; 83.6 points

D)



; Higher than 90.4 points

E)



; Higher than 83.6 points

Solve the problem.

- 8) The volumes of soda in quart soda bottles can be described by a Normal model with a mean of 32.3 oz and a standard deviation of 1.2 oz. What percentage of bottles can we expect to have a volume less than 32 oz? 8) _____
- A) 40.13% B) 9.87% C) 38.21% D) 59.87% E) 47.15%

- 9) A bank's loan officer rates applicants for credit. The ratings can be described by a Normal model with a mean of 200 and a standard deviation of 50. If an applicant is randomly selected, what percentage can be expected to be between 200 and 275? 9) _____
- A) 43.32% B) 42.37% C) 5.00% D) 6.68% E) 93.32%

- 10) The lengths of human pregnancies can be described by a Normal model with a mean of 268 days and a standard deviation of 15 days. What percentage can we expect for a pregnancy that will last at least 300 days? 10) _____
- A) 1.79% B) 48.34% C) 1.99% D) 1.66% E) 98.34%

In a standard Normal model, state what value(s) of z cuts off the described region.

- 11) the lowest 40% 11) _____
- A) -0.25 B) 0.25 C) 0.50 D) -0.57 E) 0.57

- 12) the highest 7% 12) _____
- A) -1.48 B) 1.26 C) 1.45 D) 1.48 E) 1.39

Solve the problem.

- 13) The scores for a recent English exam can be represented by the Normal model $N(66, 7.4)$. What score would you expect to be unusually low for this exam? 13) _____
- A) 43.8 B) 73.4 C) 58.6 D) 88.2 E) 62.3

- 14) Here are some scores from a recent Mathematics exam: 95.5, 65.9, 93.2, 80.6, 56.8, 50, 86.4, 54.5, 40.9, 77.3, 79.5, 10, 65.9, 70.5, 15, 77.3, 81.8, 12, 50, 79.5, 60.2. Which is a better summary of the scores, the mean or the median? Explain. 14) _____
- A) Median, the data is so skewed to the left
B) Median, the data is so skewed to the right
C) Mean, the data is so skewed to the left
D) Either, the data is symmetric
E) Mean, the data is so skewed to the right

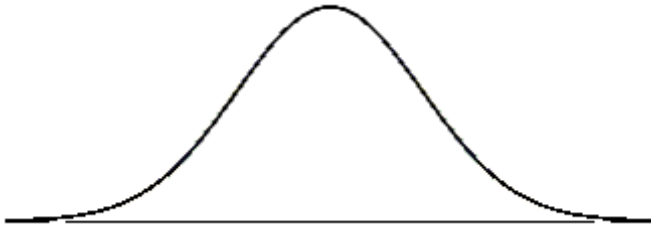
Provide an appropriate response.

- 15) Suppose that a Normal model describes the acidity (pH) of rainwater, and that water tested after last week's storm had a z -score of 1.8. This means that the acidity of that rain... 15) _____
- A) varied with a standard deviation of 1.8
B) had a pH 1.8 standard deviations higher than that of average rainwater.
C) had a pH of 1.8.
D) had a pH 1.8 higher than average rainfall.
E) had a pH 1.8 times that of average rainwater.

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Solve the problem.

- 16) IQ (Intelligence Quotient) test scores on the WAIS-R (Wechsler Adult Intelligence Scale — Revised) follow a Normal model with mean 100 and standard deviation 15. Draw and clearly label this model. 16) _____



Use your drawing to answer the following. Show your work:

- a. What percent of adults have an IQ between 70 and 130?
- b. What percent of adults have an IQ between 100 and 130?
- c. What percent of adults have an IQ greater than 130?
- d. What are the IQ's of the lowest scoring 16% of the population (16th percentile)?