

Practice 12-7

Normal Distributions

A set of data with a mean of 45 and a standard deviation of 8.3 is normally distributed. Find each value, given its distance from the mean.

1. +1 standard deviation from the mean
2. +3 standard deviations from the mean
3. -1 standard deviation from the mean
4. -2 standard deviations from the mean

Sketch a normal curve for each distribution. Label the x-axis at one, two, and three standard deviations from the mean.

5. mean = 95; standard deviation = 12
6. mean = 100; standard deviation = 15
7. mean = 60; standard deviation = 6
8. mean = 23.8; standard deviation = 5.2
9. mean = 676; standard deviation = 60
10. mean = 54.2; standard deviation = 12.3

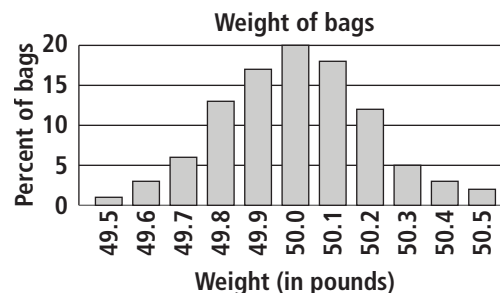
A set of data has a normal distribution with a mean of 5.1 and a standard deviation of 0.9. Find the percent of data within each interval.

11. between 4.2 and 5.1
12. between 6.0 and 6.9
13. greater than 6.9
14. between 4.2 and 6.0
15. less than 4.2
16. less than 5.1

17. Scores on an exam are normally distributed with a mean of 76 and a standard deviation of 10.
 - a. In a group of 230 tests, how many students score above 96?
 - b. In a group of 230 tests, how many students score below 66?
 - c. In a group of 230 tests, how many students score within one standard deviation of the mean?

18. The number of nails of a given length is normally distributed with a mean length of 5.00 in. and a standard deviation of 0.03 in.
 - a. Find the number of nails in a bag of 120 that are less than 4.94 in. long.
 - b. Find the number of nails in a bag of 120 that are between 4.97 and 5.03 in. long.
 - c. Find the number of nails in a bag of 120 that are over 5.03 in. long.

19. The actual weights of bags of pet food are normally distributed. The mean of the weights is 50.0 lb, with a standard deviation of 0.2 lb. Use the graph for a–c.
 - a. About what percent of bags of pet food weigh less than 49.8 lb?
 - b. In a group of 250 bags, how many would you expect to weigh more than 50.4 lb?
 - c. In a group of 50 bags, how many would you expect to be within 1.5 standard deviations of the mean?



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