

Section 12.4 Worksheet

Name _____

For Exercises 1-3, the scores on a driver's test are normally distributed with a mean of 100.

1. Find the score that is 3 standard deviations above the mean, if the standard deviation is 18.

154

2. Find the score that is 2 standard deviations below the mean, if the standard deviation is 24.

52

3. Find the score that is $2\frac{1}{2}$ standard deviations above the mean, if the standard deviation is 24.

160

For Exercises 4-6, suppose that prices of a certain model of new homes are normally distributed with a mean of \$150,000. Use the 68-95-99.7 rule to find the percentage of buyers who paid:

4. between \$140,300 and \$151,700, if the standard deviation is \$1700.

68%

5. between \$150,000 and \$152,600, if the standard deviation is \$1300.

47.5%

6. more than \$152,200, if the standard deviation is \$1100.

2.5%

For Exercises 7-9, a set of data items is normally distributed with a mean of 60. Convert the data item to a z-score, if the standard deviation is as given.

7. data item: 66; standard deviation: 6

1

8. data item: 108; standard deviation: 12

4

9. data item: 50; standard deviation: 10

-1

For Exercises 10-12, a set of data items is normally distributed with a mean of 500. Find the data item in this distribution that corresponds to the given z-score.

10. $z = 2$, if the standard deviation is 50.

600

11. $z = 1.5$, if the standard deviation is 50.

575

12. $z = -3$, if the standard deviation is 60.

320

20
57

26

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For Exercises 13-18, use the table of z-scores and percentiles to find the percentage of data items in a normal distribution that lie in the given range

13. a. above $z = 0.6$ **27.43%**

b. below $z = 0.6$ **72.57%**

14. a. above $z = -0.9$ **81.59%**

b. below $z = -0.9$ **18.41%**

15. between $z = 1$ and $z = 2$ **13.59%**

16. between $z = 0.4$ and $z = 1.4$ **26.38%**

17. between $z = -0.9$ and $z = 0.9$ **63.18%**

18. between $z = -2$ and $z = -0.9$ **16.13%**