Name _____

11-4 Additional Practice

Normal Distributions

A sleep study found that the number of hours each person slept was normally distributed. The study found that the average person slept 8.2 hours with a standard deviation of 0.7 hours.

1. What range of hours of sleep are the 99.7% closest to the mean?

2. The 2.5% of the people who slept the most got more than how many hours of sleep?

3. The 16% of the people who slept the least got less than how many hours sleep?

The actual weights of bags of pet food are normally distributed about the mean of 50.0 lb. with a standard deviation of 0.2 lb.

4. About what percentage of bags of pet food weigh between 49.8 lb and 50.2 lb?

5. About what percentage of bags weigh less than 49.8 lb?

6. In a group of 250 bags, what percentage of bags would you expect to weigh more than 50.4 lb?

7. Hugo averages 32 home runs per season with a standard deviation of 2.5. Jacob averages 27 home runs per season with a standard deviation of 1.6. Last season Hugo hit 36 home runs and Jacob hit 31 home runs. Who had more home runs relative to their usual seasonal average? Explain.

Find the percent of all values in a normal distribution described by each *z*-score.

8. $z \leq 1.24$

9. $z \geq 3.45$

10. $z \leq -0.98$

11. The number of miles traveled by a car before a certain part fails is normally distributed with a mean of 60,000 mi and a standard deviation of 5,000 mi. What is the probability that the part will fail before 55,000 mi or after 65,000 mi?

11-4 Additional Practice

Normal Distributions

A sleep study found that the number of hours each person slept was normally distributed. The study found that the average person slept 8.2 hours with a standard deviation of 0.7 hours.

1. What range of hours of sleep are the 99.7% closest to the mean?
   6.1 to 10.3 h

2. The 2.5% of the people who slept the most got more than how many hours of sleep?
   9.6 h

3. The 16% of the people who slept the least got less than how many hours sleep?
   7.5 h

The actual weights of bags of pet food are normally distributed about the mean of 50.0 lb. with a standard deviation of 0.2 lb.

4. About what percentage of bags of pet food weigh between 49.8 lb and 50.2 lb?
   68%
5. About what percentage of bags weigh less than 49.8 lb?
   16%
6. In a group of 250 bags, what percentage of bags would you expect to weigh more than 50.4 lb?
   2.5%
7. Hugo averages 32 home runs per season with a standard deviation of 2.5. Jacob averages 27 home runs per season with a standard deviation of 1.6. Last season Hugo hit 36 home runs and Jacob hit 31 home runs. Who had more home runs relative to their usual seasonal average? Explain.
   Jacob; Hugo homered 1.6 standard deviations above his average while Jacob homered 2.5 standard deviations above his average.

Find the percent of all values in a normal distribution described by each *z*-score.

8. $z \leq 1.24$ **89.25%**
9. $z \geq 3.45$ **0.03%**
10. $z \leq -0.98$ **16.35%**

11. The number of miles traveled by a car before a certain part fails is normally distributed with a mean of 60,000 mi and a standard deviation of 5,000 mi. What is the probability that the part will fail before 55,000 mi or after 65,000 mi?
    32%