

HW 5

Name: _____

Due Wednesday, Oct. 8

Red ID: _____

Use the following to answer questions 1 through 5

The weight of mice is normally distributed with a mean of 22 g and a standard deviation of 3.4 g.

1. Let X be the weight of a randomly selected mouse. Describe the probability distribution of X .
2. What is the probability a randomly selected mouse weighs less than 27 grams?
3. What is the probability a randomly selected mouse weighs at least 20.9 grams?
4. What is the probability a randomly selected mouse weighs between 20.3 and 25.0 grams?
5. There is one particular mouse which has a weight such that only 0.3% weigh more than this mouse. How much does this particular mouse weigh?
6. The body length of mice is normally distributed, with a mean of 8.4 cm. If 68% of mice have a body length of *at least* 7.8 cm, what is the standard deviation of body length in mice?

7. The blood pressure of adults is normally distributed with a standard deviation of 19 mm Hg. The probability a randomly selected adult would have a blood pressure of 89 or less is 0.09. What is mean blood pressure?

Use the following to answer questions 8 through 12

Final exam scores in a History class are normally distributed, with a mean score of 84 and a standard deviation of 6.79.

8. Let X be the score of a randomly selected exam. Describe the probability distribution of X .

9. What is the probability a randomly selected exam has a score of 70 or less?

10. What is the probability a randomly selected exam has a score of 87 or higher?

11. What is the probability a randomly selected exam has a score between 71 and 80?

12. 76% of students scored lower than Jane. What exam score did Jane receive?

13. The distribution of resting heart rate in beats per minute is normal with a standard deviation of 10.7 bpm. 6% of adults have a higher resting heart rate than one particular subject, who has a resting heart rate of 97 bpm. What is the mean resting heart rate of adults?

14. The number of hours a lightbulb lasts is normally distributed with a mean of 10000 hours. If 20% of lightbulbs last for 8723 hours or less, what is the standard deviation of lightbulb lifetime?

15. Hank took the SAT, which has scores that are normally distributed, with a mean score of 1005 and a standard deviation of 197. Bob took the ACT, which has scores that are normally distributed, with a mean score of 19 and standard deviation of 5. Hank scored a 729 while Bob score a 21. Who did better?