# Chapter 17 Review

*Directions: Complete each of the following sets of problems.*

1. A bag contains rubber bands with lengths that are normally distributed with a mean of 6 cm of length, and a standard deviation of 1.5 cm. What percentage of rubber bands can be expected to be shorter than 3 cm?

2. A bag contains rubber bands with lengths that are normally distributed with a mean of 6 cm of length, and a standard deviation of 1.5 cm. What is the probability that a randomly selected nail is between 4.5 and 7.5 cm long?

3. If students' scores were normally distributed and the mean was 200 with a standard deviation of 40, then what is the probability, in percentages, that it's between 120 and 240?

4. If students' scores were normally distributed and the mean was 200 with a standard deviation of 40, then what is the probability, in percentages, that it is below 240?

5. If students' scores were normally distributed and the mean was 200 with a standard deviation of 40, then what is the probability, in percentages, that it above 280?

6. Macy wanted to track how many times she would jump a minute using a jump rope. She tracks her jumps per minute and discovered that she could do about 40 jumps a minute.

   Step 1: Create a table to represent this data, up to five minutes.

   Step 2: Now, plot the points on a graph.

*Answer the following questions: (You do not have to submit your table or graphs)*

   6a) Is this data conditional or random? Why? Explain.

   6b) What is the slope of the line?

   6c) Write an equation for this line:

***Environmental engineers studying a specific river wanted to estimate the population of bass in a certain area. In the first sampling they caught and marked 125 bass, in the second sampling, they also collected 125 more bass and found that only 14 of them had been originally marked.***

7. What is the estimated bass population based on the findings of the two samplings?

8. What would the population estimate be if they had caught 120 bass the second time and only 8 of them had been originally marked from the original sampling?

9. What would the population estimate be if they had caught 50 bass the second time and only 5 of them had been originally marked from the original sampling of 80?

10. What would the population estimate be if they had caught 130 bass the second time and only 3 of them had been originally marked from an original sampling of 125?

11. What would the population estimate be if they had caught 40 bass the second time and only 11 of them had been originally marked from an original sampling of 50?

**Let's say you have a deck of cards, what is the probability that the following will occur?**

12. You draw a Queen:

13. You draw a red card:

**Based on the Standard American English alphabet, what is the probability that of the following would occur by choosing a letter at random?**

14. You choose a letter that is not H:

15. You choose letters that will make up the word LOVE:

**Based on a six-sided dice, what is the probability that of the following would occur by rolling it?**

16. You roll an even number:

17. You roll every number other than 3:

18. Let's say a coin is tossed 4 times. Create a sample set that demonstrates the 16 different results. You might find it helpful to create a tree diagram to find the possible results:

**Based on the information from the sample space above in question #7, answer the following questions.**

*What is the probability that the four tosses will result in…*

19. Two heads and two tails?

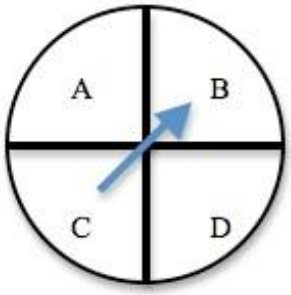
20. With more tails than heads?

**Determine if the following samples are or are not mutually exclusive. If they are mutually exclusive write "mutually exclusive" if they aren't mutually exclusive, then write "not mutually exclusive."**

21. An herb; a plant:

22. A bird; an insect:

**A circle is divided into 4 parts: A, B, C, D**




23. If the pointer is spun repeatedly, then how many different results could occur from 5 spins?

24. If the pointer is spun repeatedly, then how many different results could occur from 15 spins?

**In how many different ways can each of the letters in the following words be arranged? Show your work and solutions.**

25. LEARN ➔

**Find the number of permutations of the digits below:**

26. 456456: