1. True or False: A study that is looking at the eye color of newborn babies is using Quantitative data.

2. True or False: A study that is measuring the length of newborn babies is using Continuous data.

3. Give 2 examples of Qualitative data.

4. Give 2 examples of Quantitative data, one continuous and one discrete.

5. Create a stem and leaf plot for the following ages: 32,33,33,34,36,43,43,43,45,45,49,50,51,52.

6. Fifteen people were asked to state the number of hours they exercise in a seven day period. The results of the survey are listed as 8, 2, 4, 7.5, 10, 11, 5, 6, 8, 12, 11, 9, 6.5, 10.5, 13.

    a. Make a frequency table (with intervals starting at 0-2)

    b. Create a histogram to display the data.

7. Using the results from problem #6 find the following statistics:

    a. Mean   d.   Range

    b. Median   e.   Variance

    c. Mode   f.   Standard Deviation

8. Describe two ways that a graph may be created so that it is misleading.

9. Jane has twelve different tops and 7 different pairs of pants, how many different outfits can be created?

10. A 4-number combination uses the digits 0-9.

    a. How many different combinations can be generated if repetition of numbers is allowed?

    b. How many different combinations can be generated if repetition of numbers is NOT allowed?

11. True or False: In a permutation order matters.

12. How many different ways can you arrange the letters in the word bookkeeper if you use all the letters each time?

13. How many different ways can a club of 15 members select a 4-member committee from its membership if all members are eligible to serve on the committee?

14. Calculate

    a. $_6P_2$

    b. $_6C_2$

    c. Why are these numbers different?

15. Describe the sample space that would generated by flipping a coin 3 times.

16. What is the probability of picking a face card from a standard deck of cards?

17. What is the probability of picking two face cards at random from a standard deck of cards if

    a. You replace the 1st card?

    b. You do not replace the 1st card?

    c. Is this probability a permutation or a combination?

18. True or False: The probability of an independent event is affected by previous events.

19. True or False: The probability of a certain event is the same as 1 or 100%.

20. Calculate the following probabilities for rolling a standard 6-sided die.

    a. $P(2) =$

    b. $P(> 3) =$

    c. $1 - P(5 \ or \ 6) =$

    d. What do we call the event in letter c?

Ice Cream Sales vs Temperature	
Temp°C	**Sales**
14.2°	$215
16.4°	$325
11.9°	$185
15.2°	$332
18.5°	$406
22.1°	$522
19.4°	$412
25.1°	$614
23.4°	$544
18.1°	$421
22.6°	$445
17.2°	$408

21. What are two categories of studies that we have discussed?

22. What is the difference between these two categories of studies?

23. What is a variable of interest?

24. True or False: A longitudinal study involves repeated observations of the same variables over long periods of time.

25. Name 3 types of Random Sampling.

26. Name and describe 2 types of non-Random Sampling.

27. What does direct control mean for your study?

28. What are the 5 characteristics of a binomial distribution?

29. Use the Ice Cream Sales vs Temperature data at the right to:

    a. Create a scatterplot for the data.

    b. Draw in a line of fit.

    c. Identify the Correlation Coefficient R.

    d. What does the R value tell you about the data?

30. True or False: An R value of -0.6 tell us there is a weak, negative relationship between the two variables.

31. True or False: An R value of 1 indicates a perfect, positive relationship between the two variables and that all data points are represented by the line of fit.

32. A quiz consists of 10 multiple-choice questions, each with four possible answer choices (A, B, C, or D), one of which is correct. Suppose that an unprepared student does not read the question, but simply makes one random guess for each question. Let the random variable X equal the number of correct guesses the student makes for the five questions. Find the following values:

    a. n

    b. p

    c. μ

    d. σ^2

    e. σ

33. True or False: In a normal distribution, 95% of the data falls within one standard deviation of the mean.

34. If $\mu = 7$ and $\sigma = 1.5$, what is the probability that $P(4 < \mu < 8.5)$?

35. A forest products company claims that the amount of usable lumber in its harvested trees averages 152 cubic feet and has a standard deviation of 14 cubic feet. Assume that these amounts have approximately a normal distribution. What percentage of trees contains more than 160 cubic feet?

36. What does a z-score of 1 tell you about the standard normal distribution?

37. What is the probability that $P(-2 < z < 1)$?

38. Identify the value of the z-score with the following information: The score was 45, $\mu = 55, \sigma = 7$.

39. The scores on an exam were normally distributed with μ=82,σ=4 and Amanda scored an 80 on the exam. Amanda's exam grade was higher than what percentage of test-takers?

40. True or false: Increasing the level of confidence from 90% to 95% increases the width of the interval by 5%.

41. True or false: A 95% confidence interval is a range of values that you can be 95% certain contains the true mean of a sample.

42. A hardware manufacturer produces bolts used to assemble various machines. Assume that the diameter of bolts produced by this manufacturer has an unknown population mean μ and the standard deviation is 0.085 mm. The average diameter of a simple random sample of 50 bolts is 4.74 mm. Calculate the 90% confidence interval.