1. Find the mean of the following numbers:

   3, 8, 15, 23, 35, 37, 41, 48

2. Find the median of the following numbers:

   8, 15, 2, 23, 41, 83, 91, 112, 17, 25

3. Find the sample standard deviation of the following numbers:

   8, 31, 57, 119, 203, 411

4. Find the sample variance of the following numbers:

   5, 11, 31, 52, 81, 82, 85, 115

5. Find the following quartiles: Q_1 and Q_3 for the following numbers:

   2 3 8 10 31 33 37 41 41

   43 47 52 81 82 82 111 131 142

   153 172 181 201 217 218 305 415 502

6. Given the following data:

x	1	2	3	4	5	6
y	11.3	13.7	18	23.4	31	52

Calculate the linear correlation coefficient.

7. The regression line for the given data is $\hat{y} = 4.109x + 27.98$

x	1	3	5	7	9	11	13
y	33.2	41.7	50	52	63.4	71	85.9

Determine the residual of a data point for which x = 5 and y = 50.

8. Find the equation of the regression line for the given data. Round values to the nearest thousandth.

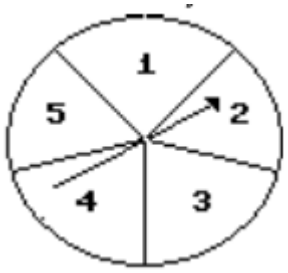
x	2	5	9	11	15	19	21	25	28
y	100.2	90.1	89	83	70.2	69	51	43	42.5

9. Given the following data:

time (x)	60	65	70	58	63	72	71
absences (y)	3	8	2	9	4	2	7

Find the equation of the regression line for the given data. What would be the predicted number of absences if the time was 80.

10. Given the following spinner:



Assuming every number has an equal chance of being landed on, find the probability of getting a 2 or 5 or 4 on a spin.

11. A die is rolled, find the probability of getting an even number or 3.

12. Given the following table:

Sex	Freshman	Sophomore	Junior	Total
Man	30	10	20	60
Woman	20	20	50	90
Total	50	30	70	150

Find the probability of getting a man or a junior if a person is chosen at random

13. A card is drawn from a standard deck of 52 playing cards. Find the probability that the card is a king or a red card. Express the probability as a simplified fraction.

14. Two dice are rolled. What is the probability of having a total of 5 or 8? Round to the nearest hundredth.

15. A bag contains 20 white, 10 blue, 15 red, 5 yellow, and 2 green wooded balls. A ball is selected from the bag, its color noted, then replaced. You then draw a second ball, note its color and then replace the ball. What is the probability of selecting 2 white balls? Round to the nearest ten-thousandth.

16. Consider a political discussion group consisting of 10 Democrats, 30 Republicans, and 20 Independents. Suppose that three group members are randomly selected, in succession, to attend a political convention. Find the probability of selecting three Republicans.

17. Given the following table:

Sex	Freshman	Sophomore	Junior	Total
Man	30	10	20	60
Woman	20	20	50	90
Total	50	30	70	150

If a person is picked at random, find the probability that they are a woman given they are a junior.

18. Four cards are drawn from a standard deck of 52 playing cards without replacement. Find the probability that all four cards are same (4 king, 4 queens, etc.). Find the probability that all four cards are aces.

19. Suppose a brewery has a filling machine that fills 12 ounce bottles of beer. It is known that the amount of beer poured by this filling machine follows a normal distribution with a mean of 12 ounces and a standard deviation of 0.05 ounce. Find the probability that the bottle contains more than 12.05 ounces of beer.

20. Suppose a brewery has a filling machine that fills 12 ounce bottles of beer. It is known that the amount of beer poured by this filling machine follows a normal distribution with a mean of 12 ounces and a standard deviation of 0.05 ounce. Find the probability that the bottle contains between 12 and 12.2 ounces of beer.

21. The amount of corn chips dispensed into a 16-ounce bag by the dispensing machine has been identified as possessing a normal distribution with a mean of 16.2 ounces and a standard deviation of 0.5 ounce. What chip amount represents the 72nd percentile for the bag weight distribution? Round to the nearest hundredth.

22. If the probability of a newborn kitten being female is 0.4, find the probability that in 200 births, 95 or less will be female. Use the normal distribution to approximate the binomial distribution.

23. The mean of grades for college algebra is 73.2 with a standard deviation of 5.1. If 20 students are selected, find the probability that the mean grade is greater than 75.

24. The mean of grades for college algebra is 73.2 with a standard deviation of 5.1. If 30 students are selected, find the probability that the mean grade is between 70 and 73.8.

25. The claim made by a sociologist is that more than 70% of people cheat on their taxes. To test this claim, 200 people were selected and it was found that 110 cheated on their taxes. The test statistic in this problem is approximately (round to the nearest hundredth):

26. Determine the critical value for a right-tailed test of a population mean at the $\alpha = 0.05$ level of significance with 20 degrees of freedom.

27. Find the standardized test statistic t for a sample with n = 18, $\bar{x} = 42.1$, s = 3.5, and $\alpha = 0.05$ if H_0: $\mu = 39$. Round your answer to three decimal places.

28. Determine the critical value for a right-tailed test of a population standard deviation with 15 degrees of freedom at the $\alpha = 0.005$ level of significance.

29. Compute the standardized test statistic, χ^2 to test the claim $\sigma^2 \neq 25.1$ if n = 15, $s^2 = 24.1$, and $\alpha = 0.05$.

30. Compute the standardized test statistic, χ^2, to test the claim $\sigma^2 > 80.1$ if n = 30, $s^2 = 80.3$, and $\alpha = 0.01$.