Statistics and probability

Partial 2022-2023

Exercise 1

David Wise handles his own investment portfolio, and has done so for many years. Listed below is the holding time (recorded to the nearest whole year) between purchase and sale for his collection of stocks.

8	8	6	11	11	9	8	5	11	4	8	5	14	7	12	8	6	11	9	7
9	15	8	8	12	5	9	8	5	9	10	11	3	9	8	6				

a. How many classes would you propose?
b. What class interval would you suggest?
c. What quantity would you use for the lower limit of the initial class?
d. Using your responses to parts (a), (b), and (c), create a frequency distribution.

Exercise 2

In recent years, due to low interest rates, many homeowners refinanced their home mortgages. Linda Lahey is a mortgage officer at Down River Federal Savings and Loan. Below is the amount refinanced for 20 loans she processed last week. The data are reported in thousands of dollars and arranged from smallest to largest.

59.2	59.5	61.6	65.5	66.6	72.9	74.8	77.3	79.2
83.7	85.6	85.8	86.6	87.0	87.1	90.2	93.3	98.6
100.2	100.7							

a. Find the median, first quartile, and third quartile.
b. Find the 26th and 83rd percentiles.
c. Draw a box plot of the data.

Exercise3

The frequency distribution representing the number of frequent flier miles at Brumley Statistical Consulting Company is presented below

Frequent Flier Miles (000)	Frequency
0 up to 3	5
3 up to 6	12
6 up to 9	23
9 up to 12	8
12 up to 15	2
Total	50

a. How many employees accumulated less than 3,000 miles?
b. Convert the frequency distribution to a cumulative frequency distribution.
c. Portray the cumulative distribution in the form of a cumulative frequency polygon.

d. Based on the cumulative frequency polygon, about 75 percent of the employees accumulated how many miles or less?

Exercise 4

Australian sheepdogs have a relatively short life. The length of their life follows a uniform distribution between 8 and 14 years.

a. Draw this uniform distribution. What are the height and base values?
b. Show the total area under the curve is 1.00.
c. Calculate the mean and the standard deviation of this distribution.
d. What is the probability a particular dog lives between 10 and 14 years?
e. What is the probability a dog will live less than 9 years?