

PRACTICE 6.1 – Sampling / 6.2 – Presenting Data

* Full, worked solutions can be found in the folder linked on the Course Website 😊

Exercise 6A



- 1 Classify each of the following as either discrete or continuous data.
 - a the number of computers you have owned
 - b the length of a computer monitor
 - c the weight of your computer
 - d the number of laptop bags that you have.
- 2 Ben is studying the average height of students who attend his school. Choose from *convenience*, *simple random*, *systematic*, *stratified* or *quota* to classify each of the following sampling techniques that Ben might use.
 - a A sample of 100 students is taken by organizing the students' names by classification (freshman, sophomore, junior or senior), and then selecting 25 students from each classification.
 - b A random name is chosen. Starting with that student, every 50th student is chosen until 80 students are included in the sample.
 - c A completely random method is used to select 100 students. Each student has the same probability of being chosen at any stage of the sampling process.
 - d The population of the school consists of 70% mathematicians and 30% non-mathematicians. Seven mathematicians and three non-mathematicians are chosen from each grade.
- 3 Determine the type of sampling technique used in each case. Choose from *convenience*, *simple random*, *systematic*, *stratified* or *quota* sample.
 - a A fishmonger selects six fish whose lengths are between 11 cm and 15 cm, seven fish whose lengths are between 11 cm and 15 cm, and three fish whose lengths are between 21 cm and 25 cm to test for taste.
 - b The school newspaper interviews 50 high school female teachers and 50 high school male teachers.
 - c A DJ chooses every fourth song on a playlist.
 - d The mathematics club uses a computer to generate 50 random numbers and then picks students whose names correspond to the numbers.
 - f A local newspaper selects to interview people at the seaside. It specifies that 90% of those interviewed must be local residents and 10% must be tourists.

TOK

Why have mathematics and statistics sometimes been treated as separate subjects?

Exercise 6B



- 1** This set of raw data shows the waiting time, in minutes, at a fast food restaurant.

13, 1.3, 8, 5, 9.25, 10, 7.1, 3, 2, 9, 18, 15, 6, 8, 2.25, 1, 7, 12, 9, 14, 16, 11, 7, 8, 6.8, 11, 20, 5, 4.2, 3.4

- a** Is the data discrete or continuous?
- b** Construct a frequency table with class intervals $0 < t \leq 4$, $4 < t \leq 8$, etc.
- c** Draw a histogram for this data.
- d** Describe the skew.

- 2** This list shows the number of hours spent studying, per student per month, for a class of IB Mathematics students.

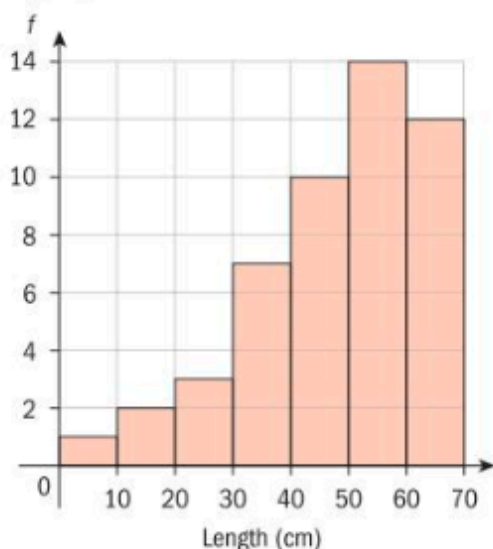
50, 49, 15.25, 21.35, 12, 18, 34, 22.51, 45, 24, 30, 20, 52, 26, 23, 40, 15.75, 24, 28.8, 18.6, 35, 40, 38

- a** Is the data discrete or continuous?
- b** Construct a frequency table with class intervals $10 < t \leq 20$, $20 < t \leq 30$, etc.
- c** Draw a histogram for this data.
- d** Describe the skew.

- 3 The masses of a group of children are recorded in the grouped frequency table below.

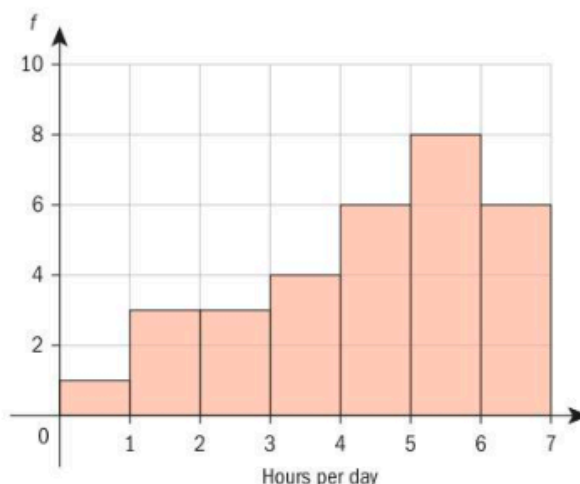
Mass (m , kg)	f
$30 < m \leq 40$	6
$40 < m \leq 50$	10
$50 < m \leq 60$	12
$60 < m \leq 70$	18
$70 < m \leq 80$	13
$80 < m \leq 90$	9
$90 < m \leq 100$	5

- a Is the data discrete or continuous?
b Draw a histogram for this data.
c Describe the skew.
- 4 A group of biology students measured the lengths of shellfish, in cm, they found at the beach. They produced this histogram to display their results.



- a Construct a frequency table with classes of $0 < l \leq 10$, $10 < l \leq 20$, etc. for this data.
b Describe the skew.

- 5 The number of hours that a professional tennis player trains each day in the month of May is represented in this histogram.



- a Construct a frequency table with classes of $0 < h \leq 1$, $1 < h \leq 2$, etc. for this data.
b Describe the skew.
- 6 Write down everything that you know about histograms and share this with a classmate. Discuss your answers.