THE STATISTICAL PROCESS

2 State whether each of the following statements is true or false.

(a) To best understand Australians' attitude to sport, you should take a random survey of people attending a football match.
(b) Statistics can be easily misused or misrepresented.
(c) In statistics, if a population is referenced it means all people alive at that moment in time.
(d) All surveys will produce useful results.
(e) It is important to avoid bias when creating a survey.
(f) When using experimental data it is important to remove any outliers.

3 Select the correct words from each given pair of options to correctly describe the statistical process.

When researching an issue you must begin by defining very **[narrowly / broadly]** the question you wish to answer. If the potential target population is too large to handle you must design a method of **[randomly / conveniently]** selecting a **[group of friends / sample]** that will provide sufficient data, even if you need to eliminate any **[poorly written surveys / outliers]**. Identify, if they exist, the **[independent / discrete]** and **[continuous / dependent]** variables. Use a combination of appropriate statistical tools including: **[scatterplots / Pythagoras' theorem]**, back-to-back stem-and-leaf plots, **[frequency diagrams / trigonometry]**, line graphs and **[regression analysis / Pythagoras' theorem]**. Summarise your findings in relation to the original question.

5 The frequency of medical appointments of all types is shown in the table below. The data is found in figures available on the Australian Bureau of Statistics website.

Age group	15–24	25–34	35–44	45–54	55–64	65–74	75 and over
Consultations: Males ('000s)							
GP	967.7	1093.7	1127.6	1162.4	1086.6	805.5	543.4
Specialist	291.7	343.5	382.2	453.5	493.4	438.9	321.1
Dentist	705.8	614.7	618.1	708.4	625.9	440.6	259.6
Hospital admission	126.3	105.9	115.6	143.8	179.0	158.5	137.4
Visited emergency	252.2	214.2	175.9	183.9	137.8	120.2	102.3
Consultations: Females ('000s)							
GP	1158.1	1382.7	1331.7	1292.8	1167.9	830.5	669.5
Specialist	363.1	526.0	556.7	522.4	555.6	440.3	351.6
Dentist	812.4	721.1	832.3	868.2	797.1	479.4	285.3
Hospital admission	163.2	293.4	222.3	169.6	176.2	170.3	142.8
Visited emergency	247.7	251.6	193.6	184.2	162.6	126.2	114.3

THE STATISTICAL PROCESS

Consider the following research questions. Use the data provided to statistically answer some or all of the questions posed or you might prefer to develop your own questions.

(a) What, if any, is the relationship between the number of GP visits made by males and the number of specialist visits made by males?

(b) What, if any, is the relationship between the number of GP visits made by females and the number of specialist visits made by females?

(c) What, if any, is the relationship between the number of GP visits made by males and the number of GP visits made by females?

(d) What, if any, is the relationship between the total number of emergency department visits and the total number of hospital admissions?

(e) What, if any, is the relationship between the total number of GP visits and the total number of dental visits?