Chapter Review

Frequently Asked Questions

Q: How are frequency tables, stem-and-leaf plots, and bar graphs alike? How are they different?

A: All three show numerical data organized in different intervals. A frequency table shows the total in each interval as a number. A bar graph shows the total visually. A stem-and-leaf plot shows both and also shows all the original data.

Number of Years Our School's Teachers Have Taught

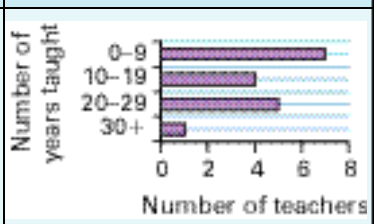
Frequency table

Number of years taught	Frequency
0–9	7
10–19	4
20–29	5
30+	1

Stem-and-leaf plot

Stem	Leaf
0	1 1 4 6 6 8 9
1	0 4 4 9
2	1 3 5 5 8
3	0

Bar graph



Q: How are the mean, median, and mode the same? How are they different?

A: The mean, median, and mode are all single numbers that describe a typical piece of data.

For example, suppose that your marks on six tests are 61, 73, 82, 88, 88, and 88. The mean is calculated by adding all six marks and dividing by 6: $(61 + 73 + 82 + 88 + 88 + 88) \div 6 = 80$.

The result, 80, would be the mark on each test if the marks on the tests were equal.

The median is the middle value when the marks are written in order from least to greatest. For the test marks, the median is the mean of the two middle numbers 82 and 88: $(82 + 88) \div 2 = 85$.

The mode is the value that occurs most frequently. The mode for the test marks is 88, which occurs three times. The mode is the only average that you can use to describe non-numerical data, such as favourite colour or eye colour.

Practice Questions

(3.2) **1.** Suppose that you are collecting data to compare your classmates' interests in sports with the Canadian averages. Would you use a survey, a census, an experiment, a questionnaire, an interview, or research to gather each type of data below? Explain.

a) the sports that your classmates play

b) the number of hockey games that a typical classmate watches per year

c) the favourite sport for your classmates

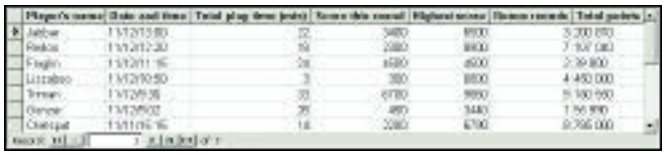
d) the most common brand of running shoe that is worn by the boys in your class

(3.2) **2.** Suppose that you want to collect data on how frequently people in your community get sick. You decide to ask the first 100 people leaving a local doctor's office.

a) Why might your results be biased?

b) What bias might you expect from this sample?

(3.3) **3.** The following database shows the last seven players to play the game Spaceship Sirius on Katherine's computer.



a) How is the database sorted now?

b) Whose name will appear first if the database is sorted in descending (highest to lowest) order using the field "Highest score"?

c) Whose name will appear first if the database is sorted in ascending (lowest to highest) order using the field "Total play time (min)"?

4. Some information from the database in question 3 was copied into this spreadsheet. (3.4)

	A	B	C	D	E	F	G
1	Player's name	Total play time (min)	Score this round	Highest score	Total points	Points per minute this round	Rank based on highest score of all rounds
2	Jabber	22	3400	6500	200 670		
3	Pedro	18	2300	8900	107 040		
4	Fraglin	24	4500	4500	39 800		
5	Lizzabee	3	300	6800	450 000		
6	Tinman	33	6700	9860	108 550		
7	Glinzer	28	460	3440	55 990		
8	Chelsport	14	2300	6790	785 000		

a) What information is in cell A7?

b) In which cell is the value 55 990?

c) What value should appear in cell G5?

d) What formula could you use to calculate "Points per minute this round"?

5. Omar wants to know what people thought of the school play. He collected the following opinions. (Key: E = excellent, G = good, S = satisfactory, P = poor) (3.5)

E	E	S	P	G	G	G	G	S
E	P	S	S	G	S	E	E	E
P	S	P	E	G	G	G	E	E
P	S	G	G	E	G	E	P	S

a) Organize these opinions using a frequency table.

b) What did most people think of the play?

6. Sandra asks 20 people entering a music store how old they are. Here are her data: (3.5)

17	25	33	38	24	8	45	27
27	15	26	37	8	14	38	4
42	17	25	31				

a) Organize the data that Sandra collected using a stem-and-leaf plot.

b) Describe three ways that the music store could use the data.

c) Use the data to create a graph that shows the most common age of the people entering the music store.

(3.5) **7.** What intervals would you use to create a stem-and-leaf plot for each set of data?

a) 25, 87, 92, 29, 33, 98, 19, 33, 45

b) 446, 440, 440, 442, 444, 442, 440, 443, 440

(3.6) **8.** Calculate the mean, median, and mode for each set of data.

a) 4, 8, 8, 9, 3, 4, 4

b) 125, 83, 115, 94, 109, 115, 89, 104

(3.6) **9.** David's French test scores are 87%, 88%, 82%, 83%, 88%, 86%, and 88%. His latest test score is 100%. Which measure (mean, median, or mode) will be most affected by his latest score? Explain.

(3.6) **10.** Shirley's golf scores are listed below.

118	112	116	120	112	117
96	90	90	92	81	83
92	92	92	90		

a) Organize these scores using a stem-and-leaf plot.

b) Calculate the mean, mode, and median for Shirley's golf scores.

c) Which measure (mean, median, or mode) is the most appropriate representation of Shirley's golf ability? Why?

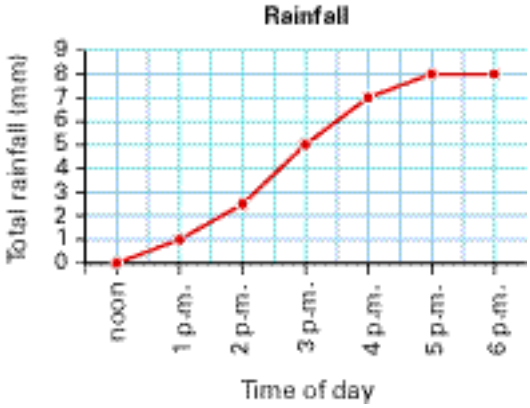
11. Anne recorded the colours of 100 cars in the parking lot of a supermarket. These are her results. (3.7)

Colour of car	Number of cars of each colour
white	20
silver	32
black	18
red	12
blue	18

a) What type of graph would you use to display Anne's data? Why?

b) Construct this graph.

12. The following graph shows the accumulated rainfall over a 6 h period. Use the graph to answer the following questions. (3.7)



a) How much rain fell in total?

b) When was the rainfall heaviest?

c) When did the least amount of rain fall?

d) How much rain fell between 3:00 p.m. and 4:00 p.m.?

e) What was the mean rainfall for the 6 h period?

f) Approximately how much rain had fallen by 2:30 p.m.?