

**Worksheet 8-3: Display Data**

A graph is a visual representation of data that displays the relationship among the variables. Graphs can summarize data, and present data more clearly and concisely than a table or written text. Depending on the type of data, various types of graphs can be used to display the data.

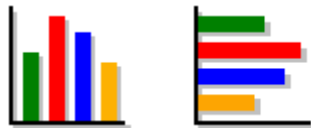
**Types of Data:**

**(1) Categorical Data**

Categorical data are values that can be sorted according to category. Each value is chosen from a set of non-overlapping categories. Categorical data are types rather than numbers, for example, colours, months or types of snack food.

*A bar graph or a circle graph (pie chart) may be used to display categorical data.*

**Bar Graph**



**Circle Graph**



**(2) Numerical Data**

Numerical data are values that can be measured or identified on a numerical scale. Numerical data are numbers and can be divided into continuous and discrete data.

▪ **Continuous Data**

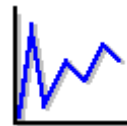
Continuous data are data that can have any numerical value within a finite or infinite interval, for example, the height of students in your class or the time required to run 1 km.

*A histogram or a line graph may be used to display continuous data.*

**Histogram**



**Line Graph**



▪ **Discrete Data**

Discrete data are data that are distinct and can be counted, for example, the number of students who like basketball or the number of trees in a provincial park.

*A bar graph or a circle graph (pie chart) may be used to display discrete data.*

**Bar Graph**



**Circle Graph**



**1.** Classify each set of data as either discrete or continuous.

(a) the number of blue cars in a parking lot recorded every day at 5 p.m. for a month

(b) the temperature outside at noon measured each day for a week

(c) barometric pressure collected each hour for a month

(d) the number of students in each Ontario high school mathematics classroom

**2.** Which type of graph would best suit each situation? Explain your choice.

(a) the number of students in each homeroom of your school

(b) the time it takes your classmates to travel to school each day

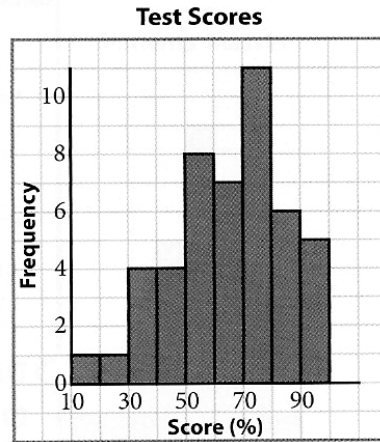
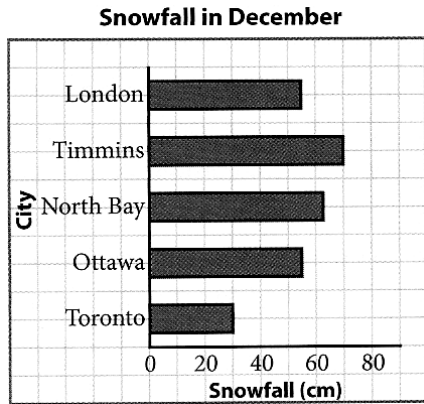
(c) your monthly spending habits

(d) the daily sales of fruit drinks at a variety store

(e) the heights of trees in a forest

(f) a hockey team's budget for players' salaries, based on the players' positions

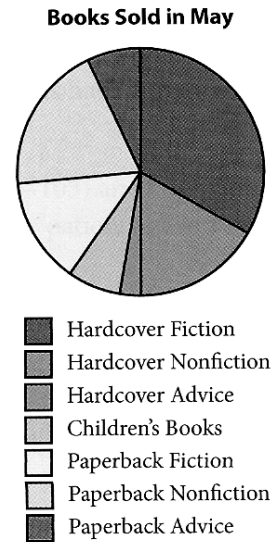
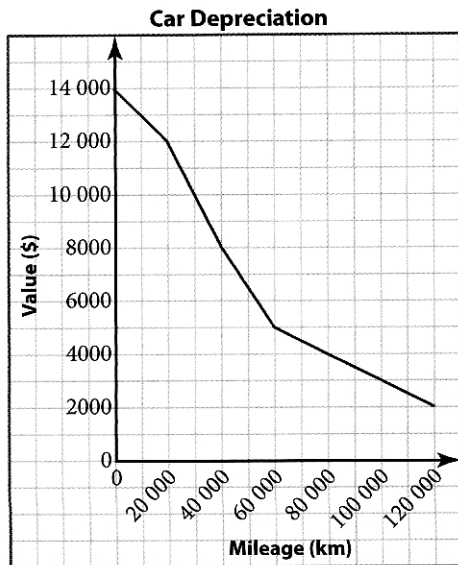
3. Examine the bar graph and the histogram.



(a) Could a bar graph have been used to display the data in the histogram? Explain.

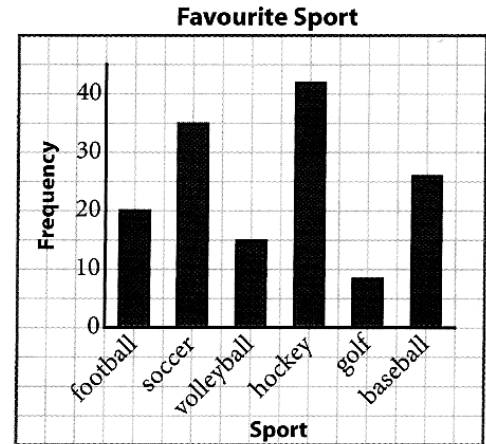
(b) Could a histogram have been used to display the data in the bar graph? Explain.

4. Which graph displays discrete data and which graph displays continuous data? Explain.



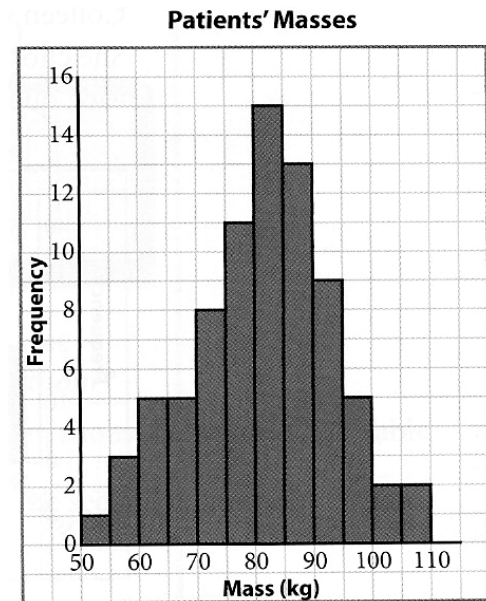
5. Alana surveyed the students at her school about their favourite sports. She chose a bar graph to display her results.

- (a) Which sport is the most popular?
- (b) Which sport is the least popular?
- (c) How many students participated in Alana’s survey?
- (d) How many students said that volley ball was their favourite sport?



6. The histogram shows the masses of a sample of patients at a hospital.

- (a) How many patients have a mass of at least 85 kg but less than 90 kg?
- (b) How many patients have a mass of at least 100 kg?
- (c) How many patients are in the sample?
- (d) Find the percent of patients who have a mass of at least 100 kg?



**Answers:** 1. (a) discrete, (b) continuous, (c) continuous, (d) discrete; 2. (a) bar graph, since the data is discrete and values are wanted for comparison, (b) histogram or line graph, since the data is continuous, (c) circle graph, since the data is discrete and part of a total amount, (d) bar graph, since the data is discrete and values are wanted for comparison, (e) histogram or line graph, since the data is continuous, (f) circle graph, since the data is discrete and part of a total amount; 3. (a) No, since the data is continuous, (b) Yes, though the information about the cities would be gone. Instead, the histogram would display the frequency of each amount of snow in those five cities; 4. The line graph shows continuous data since the data points are joined by a continuous line; the circle graph shows discrete data; 5. (a) hockey, (b) golf, (c) 146, (d) 15; 6. (a) 13, (b) 4, (c) 79, (d) 5.1%