

One- and Two-Variable Data

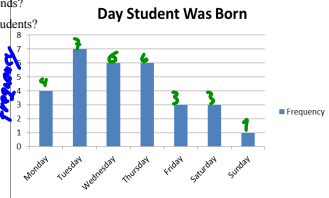
In statistics, a variable is an attribute that can be measured.

One-variable data sets give measures of one attribute. You can recognize one-variable data situations when you see tally charts, frequency tables, bar graphs, histograms, pictographs, and circle graphs.

Two-variable data sets give measures of two attributes for each item in a sample. You can recognize two-variable data when you see order pairs, scatter plots, two-column tables of values

Example 1: The members of a Grade 12 class were asked on what day of the week they were born. The results are displayed on the bar graph below.

- a) How many students were in the class?
- b) What percent of the students were born on weekends?
- c) What day(s) of the week were born most of the students?



Solution

a) $4+7+6+6+3+3+1=30$
 \therefore There were 30 students in the class.

b) Four students were born on the weekend.

$$\frac{\text{Number of students born on the weekend}}{\text{Number of students in class}} = \frac{4}{30} \times 100\%$$

$$= 0.1333 \times 100\%$$

$$\approx 13.3\%$$
 \therefore Approx. 13.3% of the students were born on weekends.

c) \therefore Most of the students were born on Tuesday, Wednesday and Thursday.

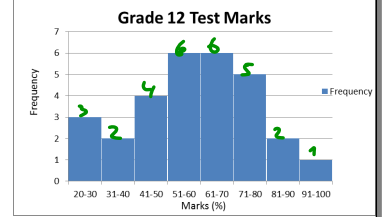
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Example 2: The test marks for a grade 12 mathematics class are displayed on the histogram below.

- a) How many students wrote the test?
- b) What percent of the students did not pass the test?

Solution: a)

Grade	Frequency
(20, 30)	3
(30, 40)	2
(40, 50)	4
(50, 60)	6
(60, 70)	6
(70, 80)	5
(80, 90)	2
(90, 100)	1



$3+2+4+6+6+5+2+1=29$
 \therefore 29 students wrote the test.

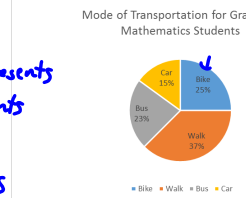
b) $3+2+4=9$ students had marks less than 50%.

$$\frac{9}{29} \times 100\% \approx 0.31 \times 100\%$$

$$= 31\%$$
 \therefore Approx. 31% of the students did not pass the test.

Example 3: A survey conducted in a math class asked students what mode of transportation they normally use to get to school. The results are shown on the following pie graph or circle graph.

- a) What does the light blue area represent?
- b) What conclusions might you make from this graph?



Solution:

- a) The light blue area represents the percent of the students that bike to school.
- b) Most of the students walk to school.

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Example 4: The following pictograph represents the number of students in each club at Mathville high school. One stick man represents 25 people.

- a) Which club has the most number of students?
- b) How many students does the soccer club have?

Activity	No. of Participants
Football	
Band	
Soccer	
Musical Theatre	
Track	

Solution:

a) Band has the most number of students.

b) The soccer club has about 37 students.

Note that pictographs are not used a lot since it is very difficult to represent exact numbers.

Homework: Pg. 126: #1-4, & Pg. 135: #3-6, 8

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