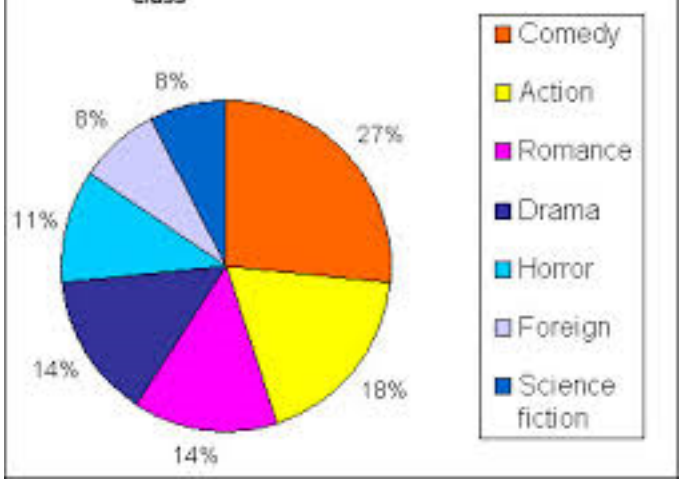
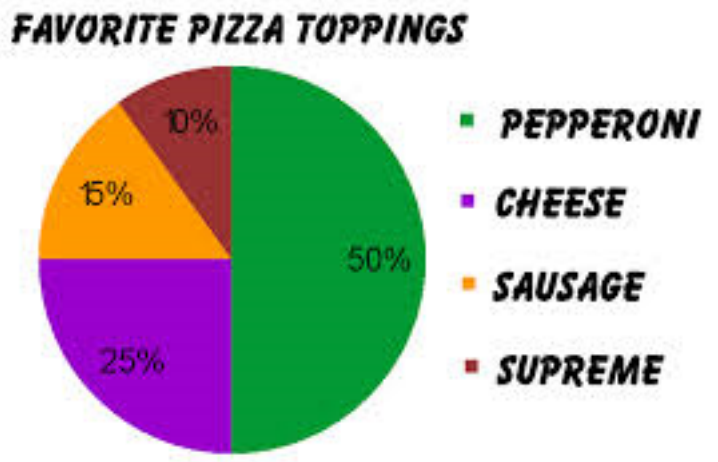
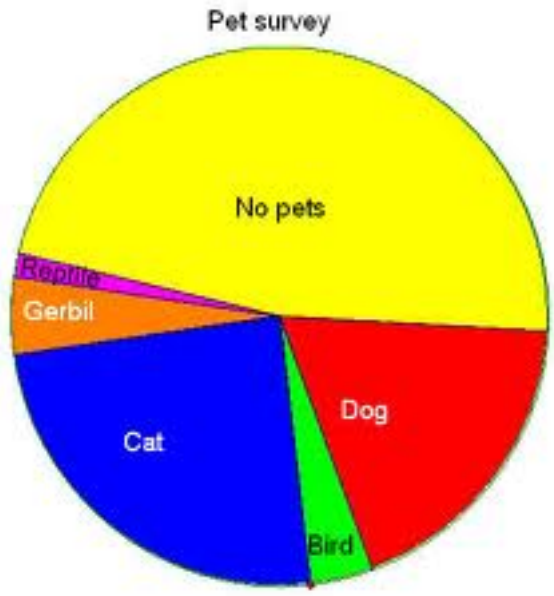
Figure 5. Favourite movie genres in Mrs. Smyth's Film class

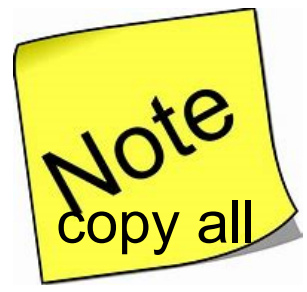




Part 2: Circle Graphs



Circle Graphs



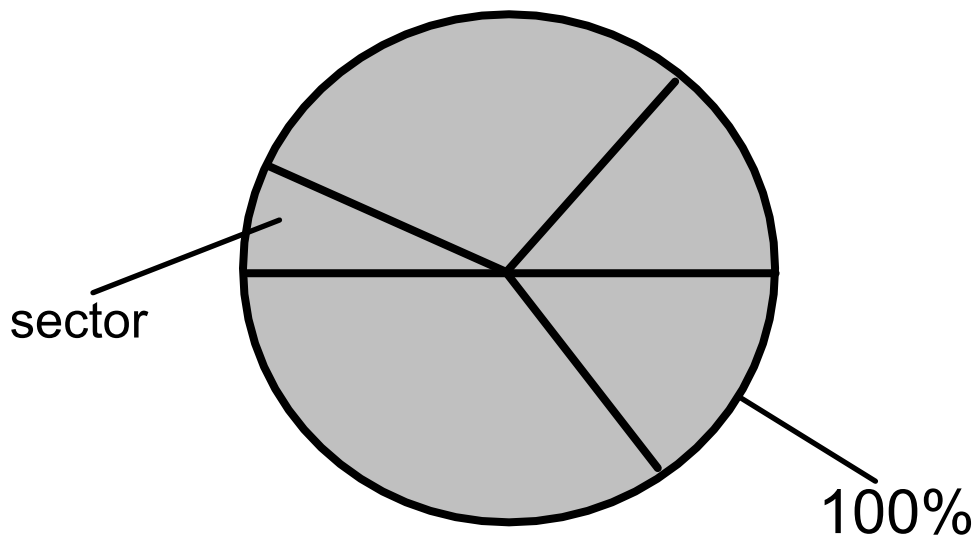
In a circle graph, data are shown as parts of one whole.

Each sector of a circle graph represents a **percent of the whole** circle.

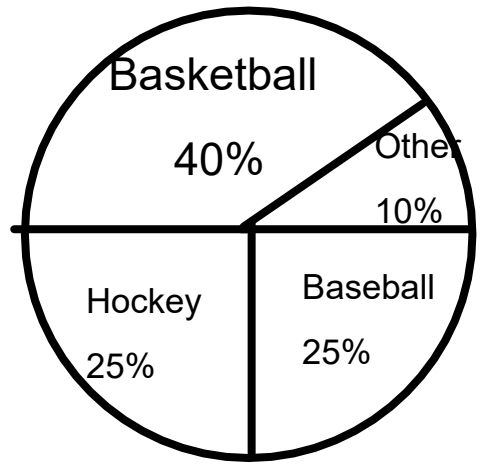
NOT the number of population

Piece of a pie--> Represents a different subject and needs to be labeled with the category name and percent.

The whole circle represents 100%.



Favorite Sports



When drawing circle graphs, the first thing you have to do is find the percent for each section, then we will fill in the percents on a hundreds circle.

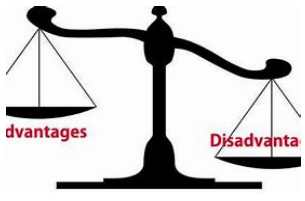
A circle graph, also known as a pie chart, displays data as a percentage of a whole.

What is needed in a Pie Chart

Each pie section should have a label and percentage.

A total data number should be included.

Title for the Pie Chart at the top.



Circle Graphs

Advantages & Disadvantages

Advantages

- visually appealing

Disadvantages

- no exact numerical data
- hard to compare two data sets
- "other" category can be a problem

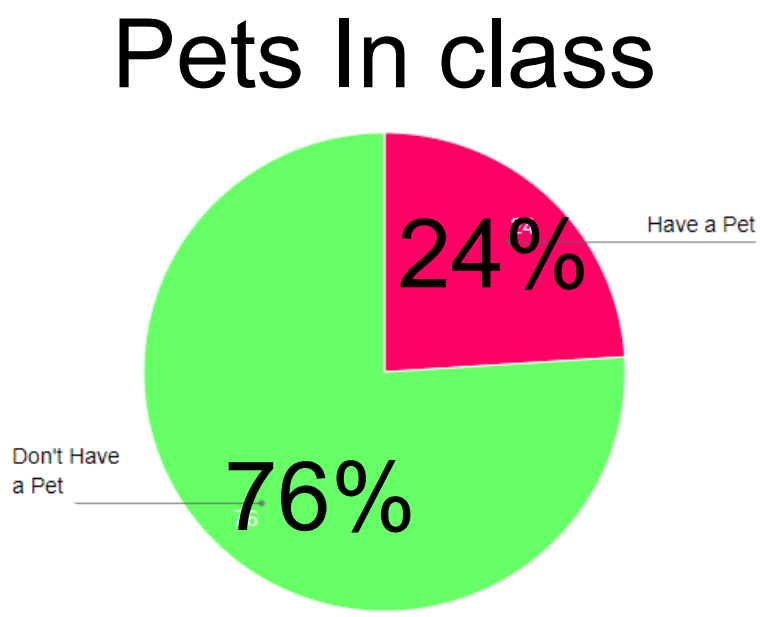
Using % from a circle graph to find the numerical value

-Number of population for each sector can be calculated using the %

% x Whole Population

(Use % as decimal)

Ex) Use the pie chart to find out how many in the class have a pet, if the class has a total 50 students.



Have a Pet

24% of Total

= 0.24 X 50

= 12

Don't have a pet

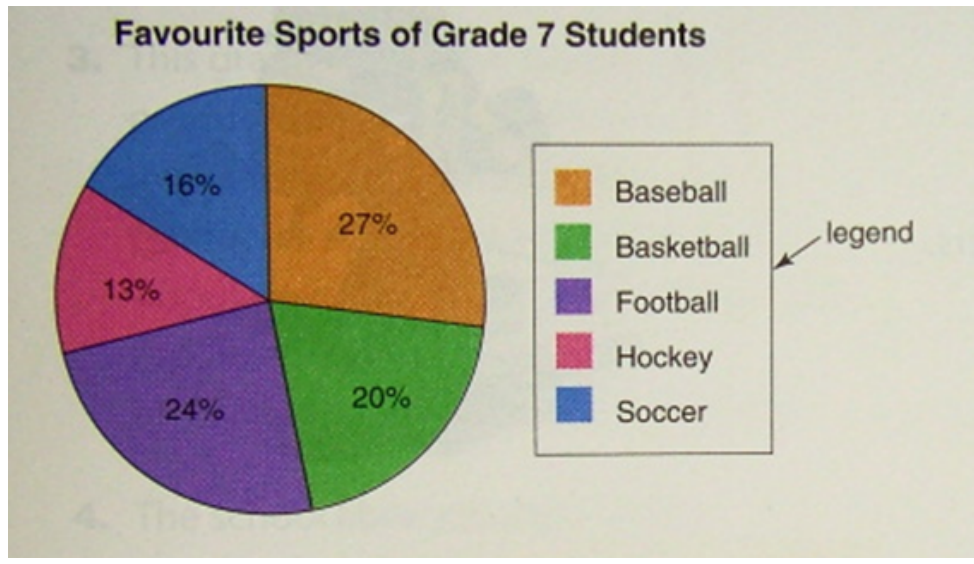
76% of Total

0.76 x 50

= 38

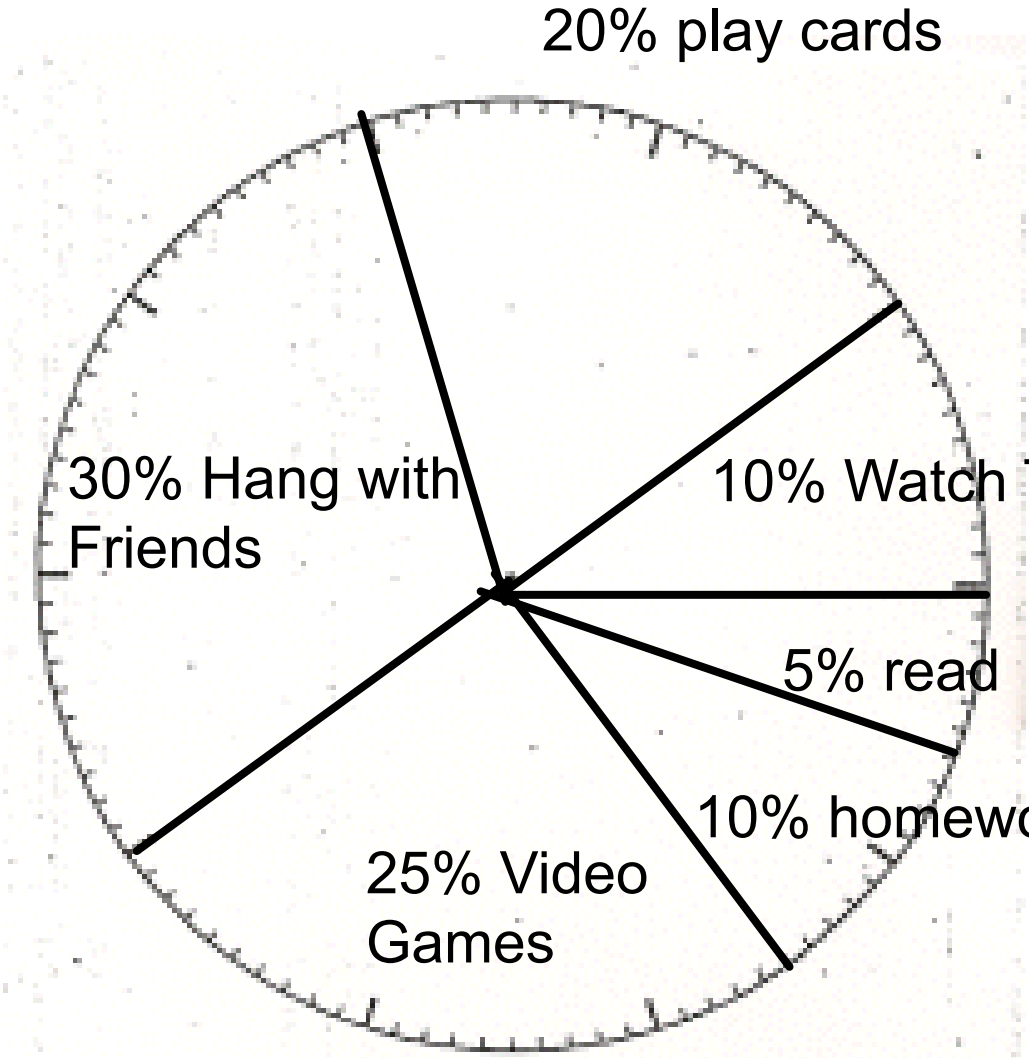
Sometimes, a circle graph has a **legend** that shows what category each sector represents.

In this case, only the percents are shown on the graph.



You try

Sixty grade 7 students are surveyed to find out their favorite after school activity. The results are shown in the circle graph



a) Which activity is the most popular? How do you know?

Hanging out w friends is the most popular b/c it has the highest percent.

b) How many students prefer each type?

(Show Calculations)

Hang w friends

30 % of Total

= 0.30 x 60

= 18

Playing Cards

20% of Total

= 0.20 X 60

= 12

Solutions are next slide

Watch tv

10 % of Total

= 0.10 x 60

= 6

Homework

10 % of Total

0.10 x 60

= 6

Read

5% of Total

= 0.05 of 60

= 3

Video Games

25% of Total

= 0.25 of 60

= 15

This graph shows Nathan's typical day.

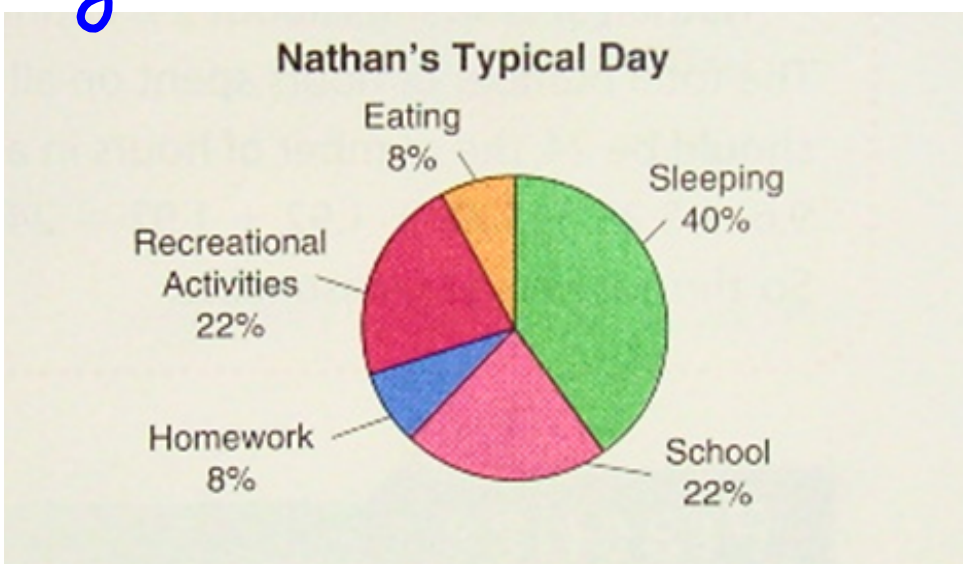
a) Which activity does Nathan do about $\frac{1}{4}$ of the time?

School or Recreational Activity

b) About how many hours does Nathan spend on each activity?

↳ Total = 24 hrs ⇒ 1 day

Check that the answers are reasonable.



Sleeping

40% of day ↓ 24hrs

= 0.40 × 24hrs

= 9.6 hrs sleeping

Eating

a) 8% of day

= 0.08 × 24

= 1.92 hrs eating

b)

On the 2006-07 Kootenay Junior Ice Hockey Team, there were 22 players. The circle graph shows where they came from.

a) From which region do more players come than any other region?

Alberta (biggest sector)

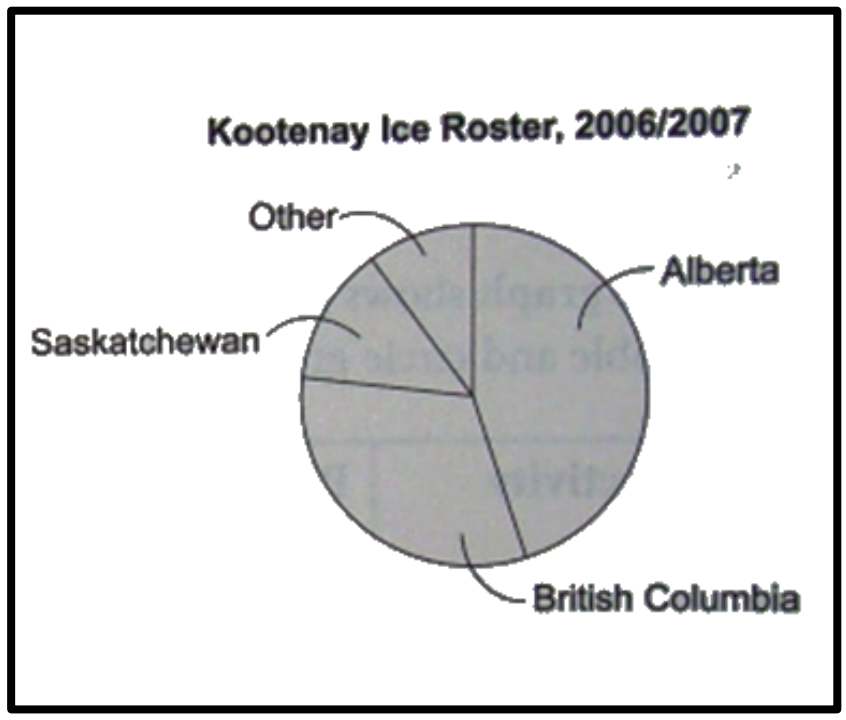
b) From which region do fewer players come than any other region?

Other (Smallest sector)

c) From which two regions together do about half of the players come?

Alberta & Other

d) Why is there a sector labelled "Other"?



↳ Other is for other provinces in Canada but very few com from them.

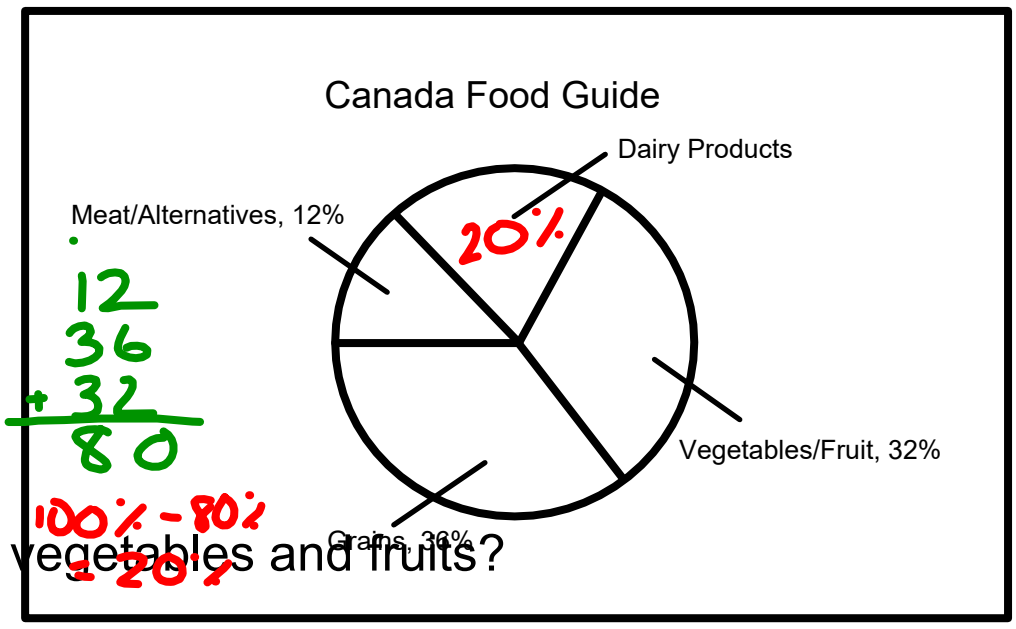
Kirabel's father is preparing meals according to the guidelines of the Canada Food Guide.
He is planning a total of 25 servings per day, as shown in the graph.
The labelling is incomplete.

a) What percent of the servings should be dairy products?

b) About how many of the servings should be grains?

c) About how many servings should be meat or meat alternatives?

d) About how many servings should be grains, or vegetables and fruits?



12
36
+ 32
80

100% - 80%
= 20%

D) Grain 36% of Total
= 0.36 x 25
= 9 servings

c) 12% of 25
= 0.12 x 25
= 3

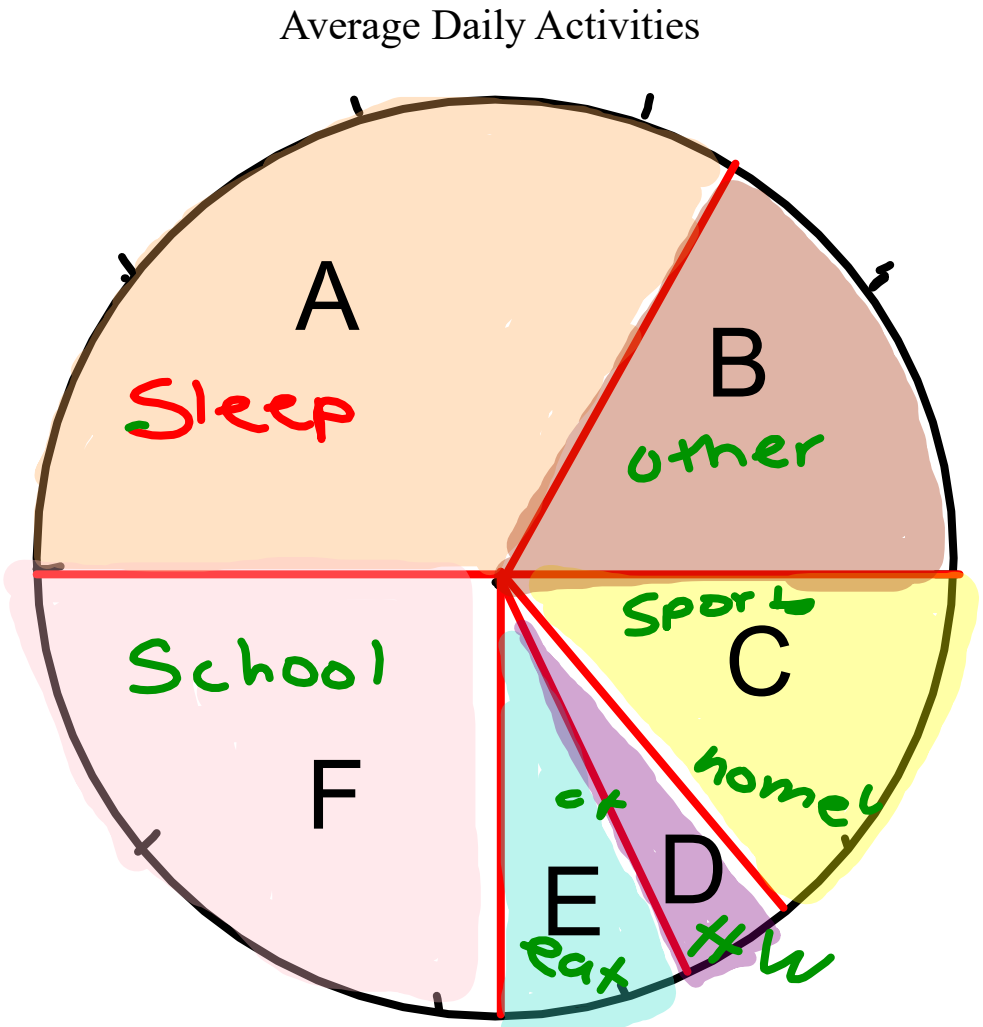
d) Veg = 32% of 25
= 0.32 x 25
= 8

Veg or Grain = 8 + 9
= 17 servings

Use your knowledge about % to label the correct sectors

School	25%
Eat	8%
Sports/ Hobbies	13%
Homework	4%
Sleep	33%
Other	17%

Legend
Sleep
School
Eat
Homework
Sports/
Hobbies
Other



Class/Homework

WS 158

1, 2, 3

(See next Slides)

WS 158

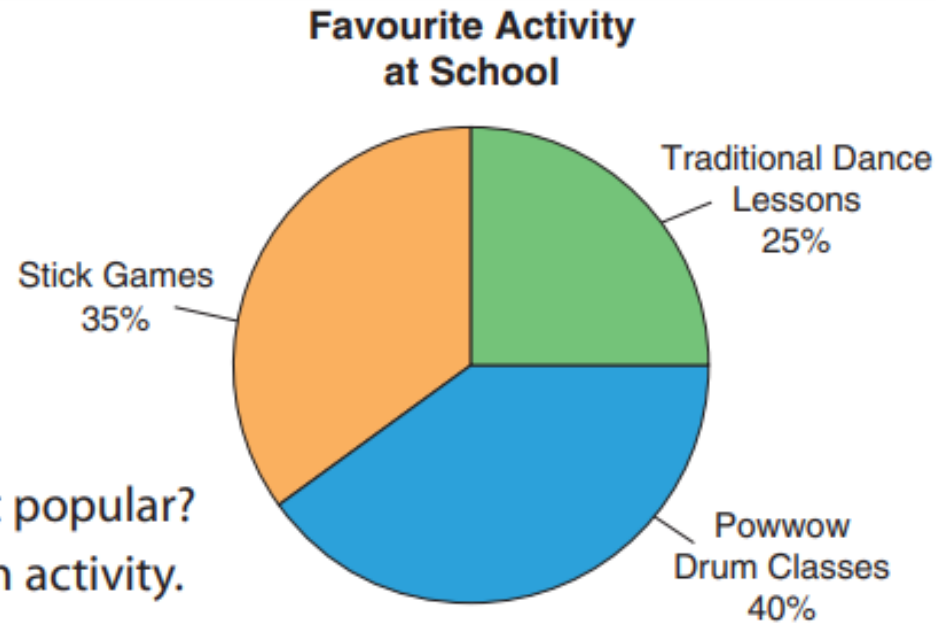
1. This circle graph shows the most popular activities in a First Nations school.
There are 500 students in the school.
All students voted.

a) Which activity did about $\frac{1}{4}$ of the students choose?
How can you tell by looking at the graph?

b) Which activity is the most popular? The least popular?

c) Find the number of students who chose each activity.

d) How can you check your answers to part c?

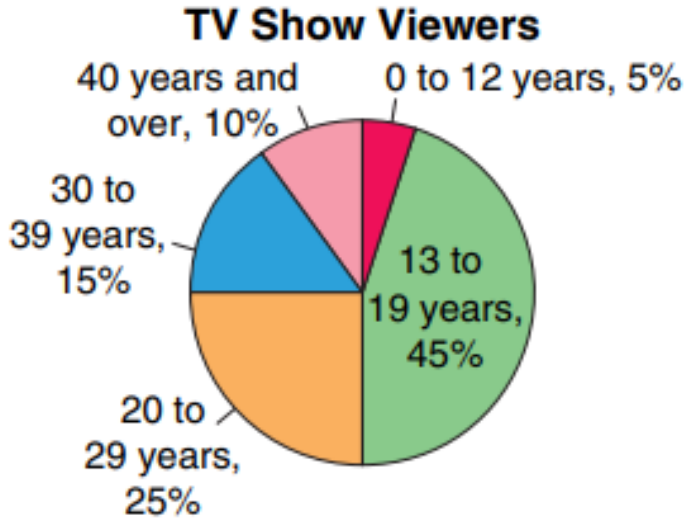


2. This circle graph shows the ages of viewers of a TV show.
One week, approximately 250 000 viewers tuned in.

a) Which two age groups together make up $\frac{1}{2}$ of the viewers?

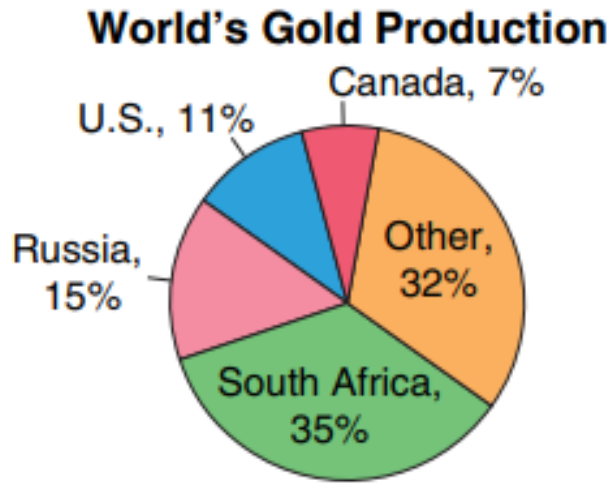
b) How many viewers were in each age group?

i) 13 to 19 **ii)** 20 to 29 **iii)** 40 and over



3. This graph shows the world's gold production for a particular year.
In this year, the world's gold production was approximately 2300 t.
About how much gold would have been produced in each country?

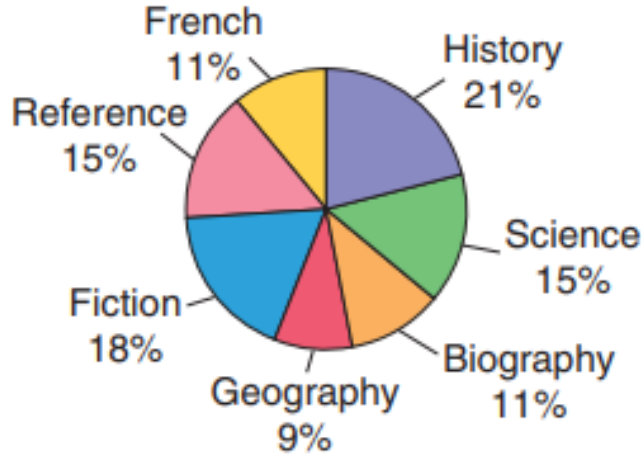
a) Canada **b)** South Africa



4. The school library budget to buy new books is $5000.
The librarian has this circle graph to show the types of books students borrowed in one year.

a) How much money should be spent on each type of book? How do you know?

b) Explain how you can check your answers in part a.



5. **Assessment Focus** This circle graph shows the populations of the 4 Western Canadian provinces in 2005.
The percent for Saskatchewan is not shown.

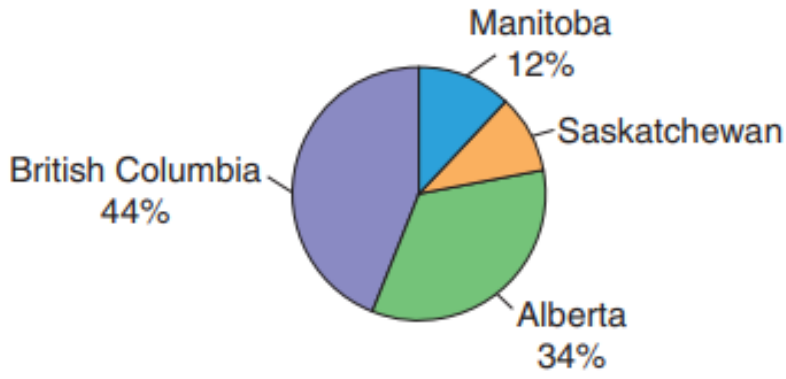
a) What percent of the population lived in Saskatchewan? How do you know?

b) List the provinces in order from least to greatest population.
How did the circle graph help you do this?

c) In 2005, the total population of the Western provinces was about 9 683 000 people.
Calculate the population of each province, to the nearest thousand.

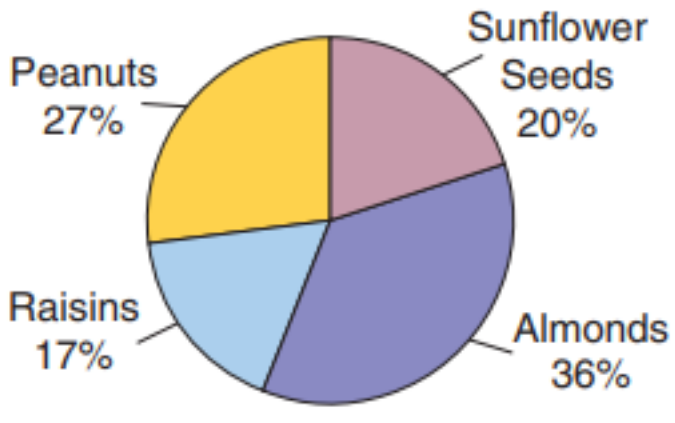
d) What else do you know from looking at the circle graph? Write as much as you can.

Population of Western Provinces 2005

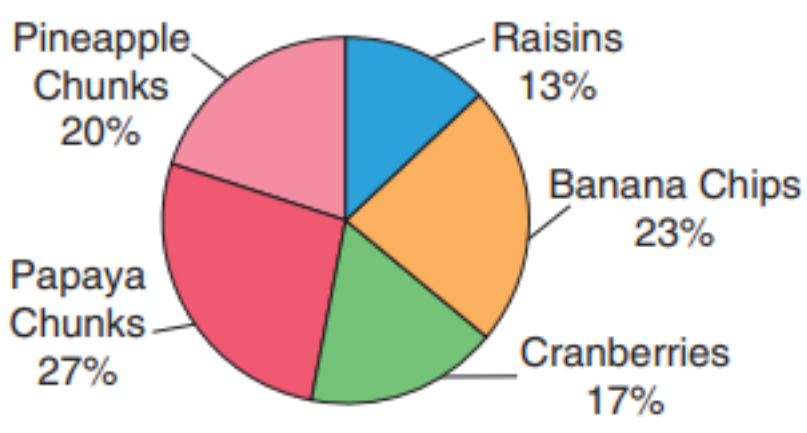


7. These circle graphs show the percent of ingredients in two 150-g samples of different snack mixes.

Morning Snack Mix

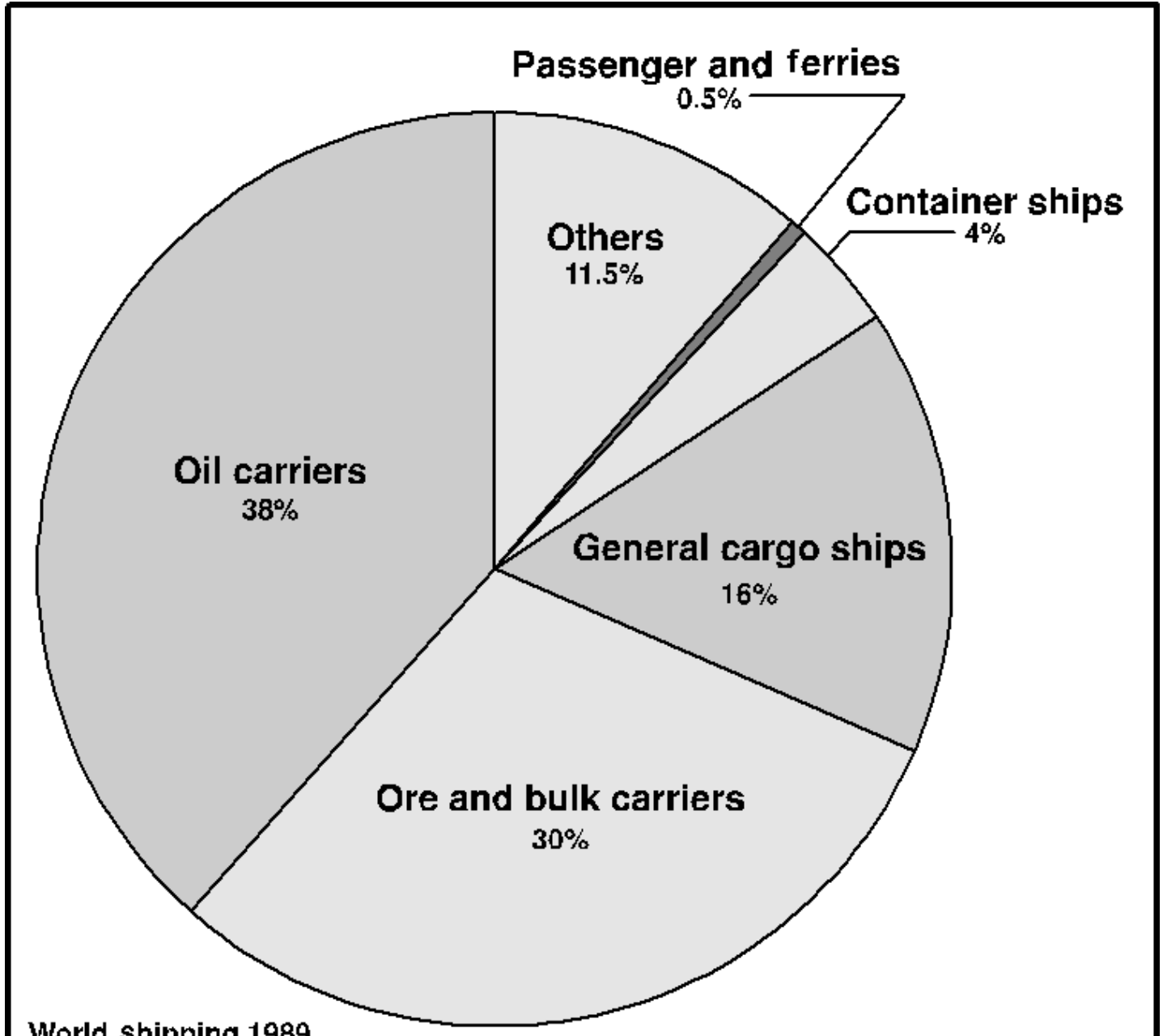


Super Snack Mix



a) For each snack mix, calculate the mass, in grams, of each ingredient.

b) About what mass of raisins would you expect to find in a 300-g sample of each mix?
What assumptions did you make?



World shipping 1989

Types of vessel by dead weight tonnage