Data Handling

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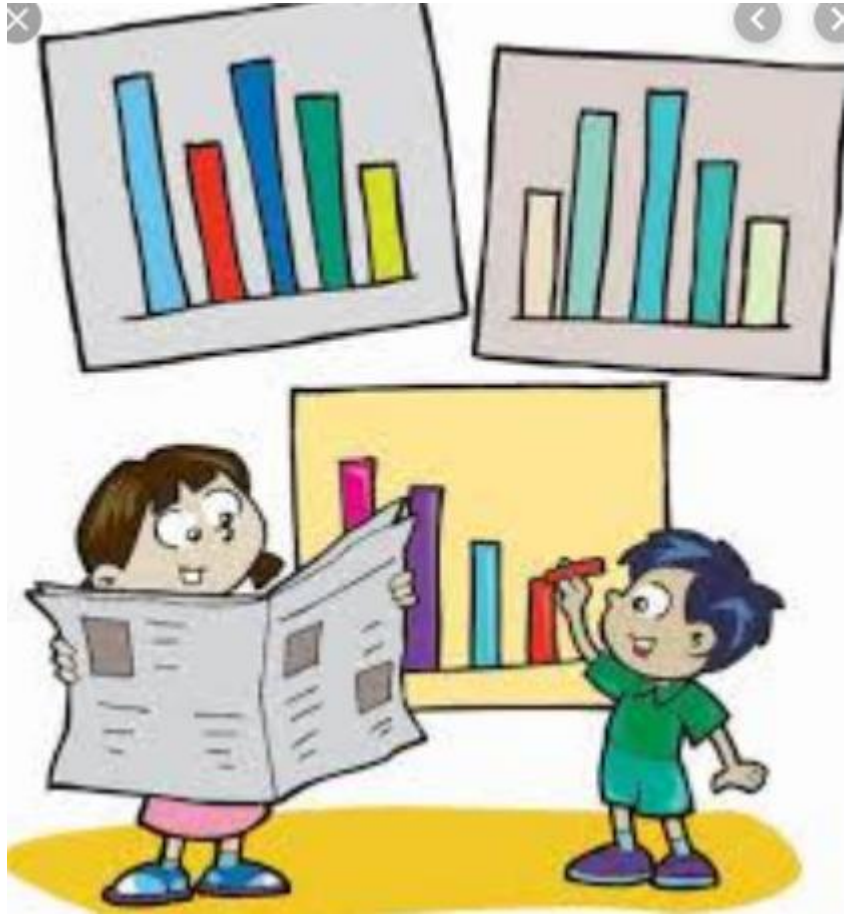


Interpret and analyse data

Data can be presented in many different ways – in words, tables and in graphs. You have already learnt how to read and interpret data in words, tables, pictographs, bar graphs, double bar graphs and **pie charts** divided into fractions. You have also answered questions about the data categories, the sources of data and the context in which it was collected.

This term you will work with the above-mentioned graphs, some of which will show the data categories as percentages.

Example

Example

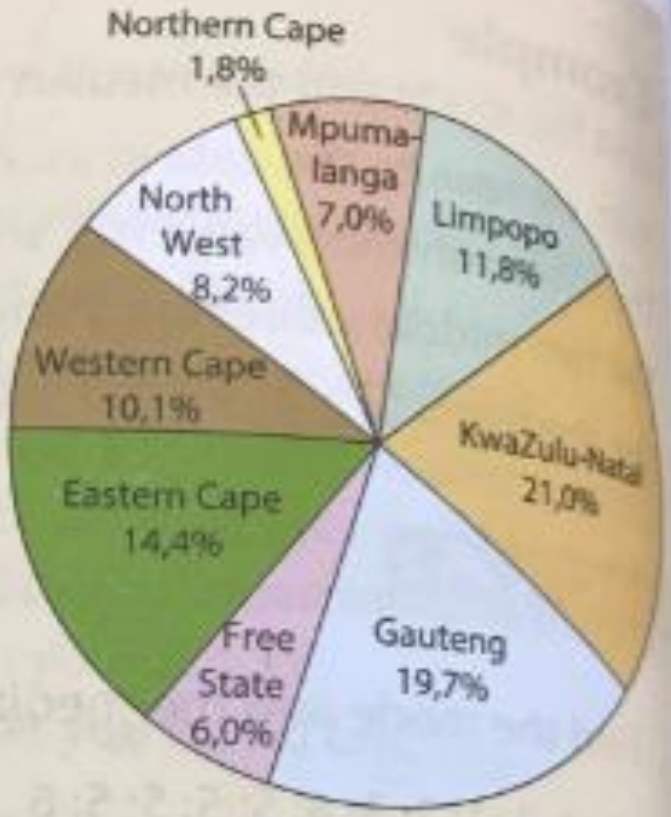
Study the pie chart showing data from the 2001 National Census.

a) What does this graph show?

b) In which province does most of South Africa's population live? What percentage of the population lives there?

c) Which provinces each have less than 10% of the population?

d) Which provinces each have more than 15% of the population?



) What percentage of the total population lives in Kwazulu-Natal, Gauteng and the Western Cape together?

) Order the provinces from the smallest percentage to the greatest percentage of the population.

Answers

a) The graph shows how the total population of South Africa is divided up among the provinces.
b) KwaZulu-Natal; 21%
c) North West, Northern Cape, Mpumalanga and Free State
d) KwaZulu-Natal and Gauteng
e) 10,1% + 19,7% + 21% = 50,8%
f) Northern Cape, Free State, Mpumalanga, North West, Western Cape, Limpopo, Eastern Cape, Gauteng, KwaZulu-Natal.

Interpret and analyze data

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4

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1 omit c

2 omit d

province.

4. a) It shows where tourists that visit South Africa come from.

   b) Europe

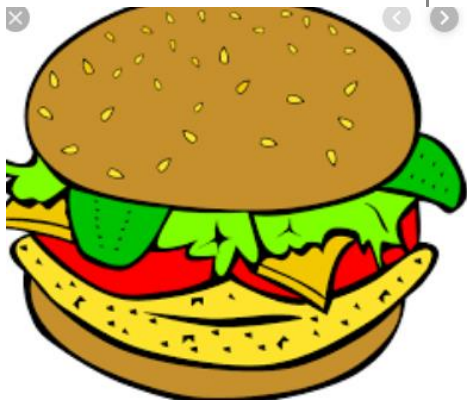
   c) Middle East – 2%
   South America – 4%
   North America – 9%
   Africa – 16%

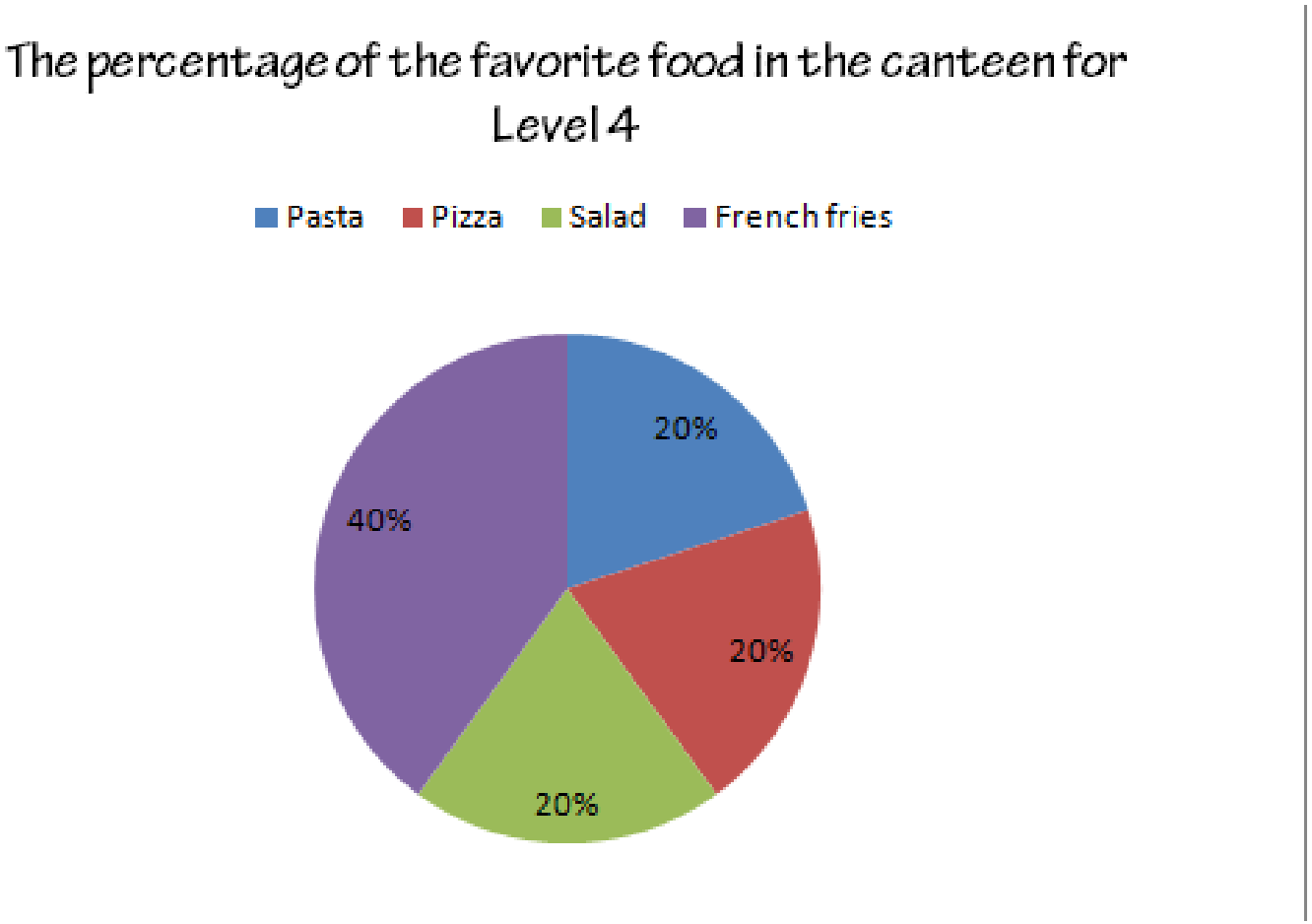
   d) South America and Australasia

Exercise 25.4

1. a) He helped his dad in the garden, watched movies, visited granny, did homework, went to church and ate.
   b) Nick went to school, ate, did homework and played sport.
   c) Learners' own paragraphs. It should state what the boys did and how much time they spent on different activities.
   d) They were collected from different sources (two different boys); they were collected at different times (one shows a weekend and the other shows a week day) so the context is different.
2. a) 131 – 140 and 151 – 160
   b) 19
   c) 9
   d) Learners' own paragraphs. It should state that all children are taller than 100 cm and that no children are taller than 180 cm tall.
   e) It may or it may not, depending on the heights of the learners, although most Grade 6 and 7 learners are likely to fall into the same range of heights as shown on the graph.

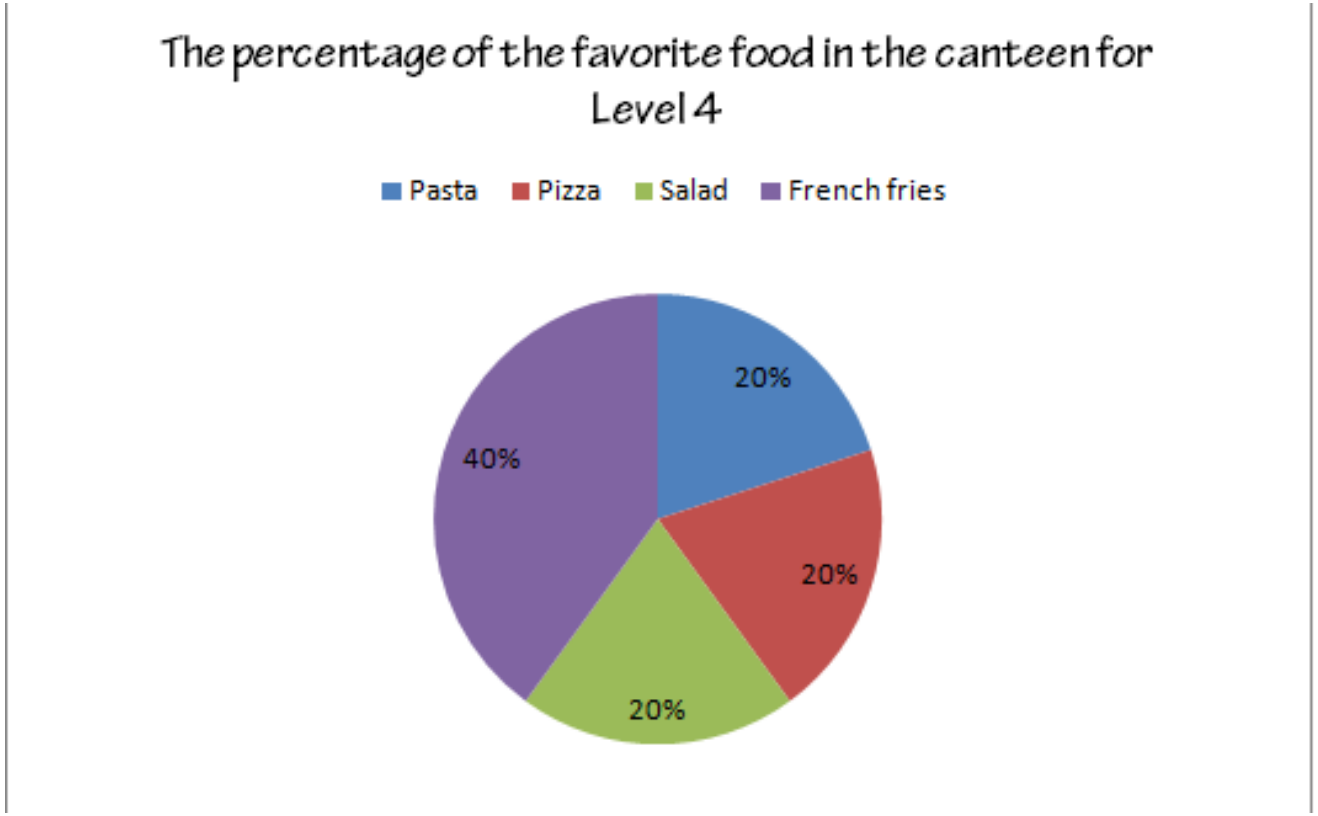
Working with charts and percentages:





Study the graph and answer the questions that follow:

If this survey was done with 120 grade 4's:



1. What number of learners' favorite food is French fries?

A. $\frac{40}{100} = \frac{2}{5}$

C. $\frac{2}{5}$ of 120

$120 \div 5 = 24 \times 2 = 48$

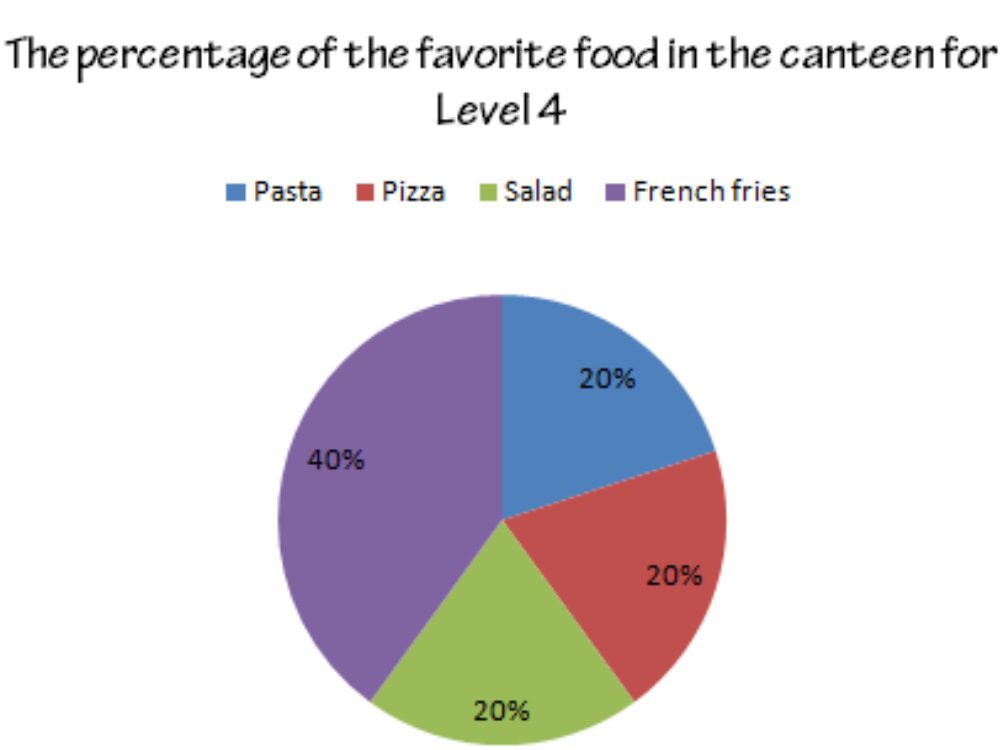
Therefore, 48 of the 120 learners like French fries.

A. A percentages is always out of a 100
B. Simplify the fraction to its simplest form
C. Now its just parts of a whole

Now try it yourself

Study the graph and answer the questions that follow:

If this survey was done with 120 grade 4's:

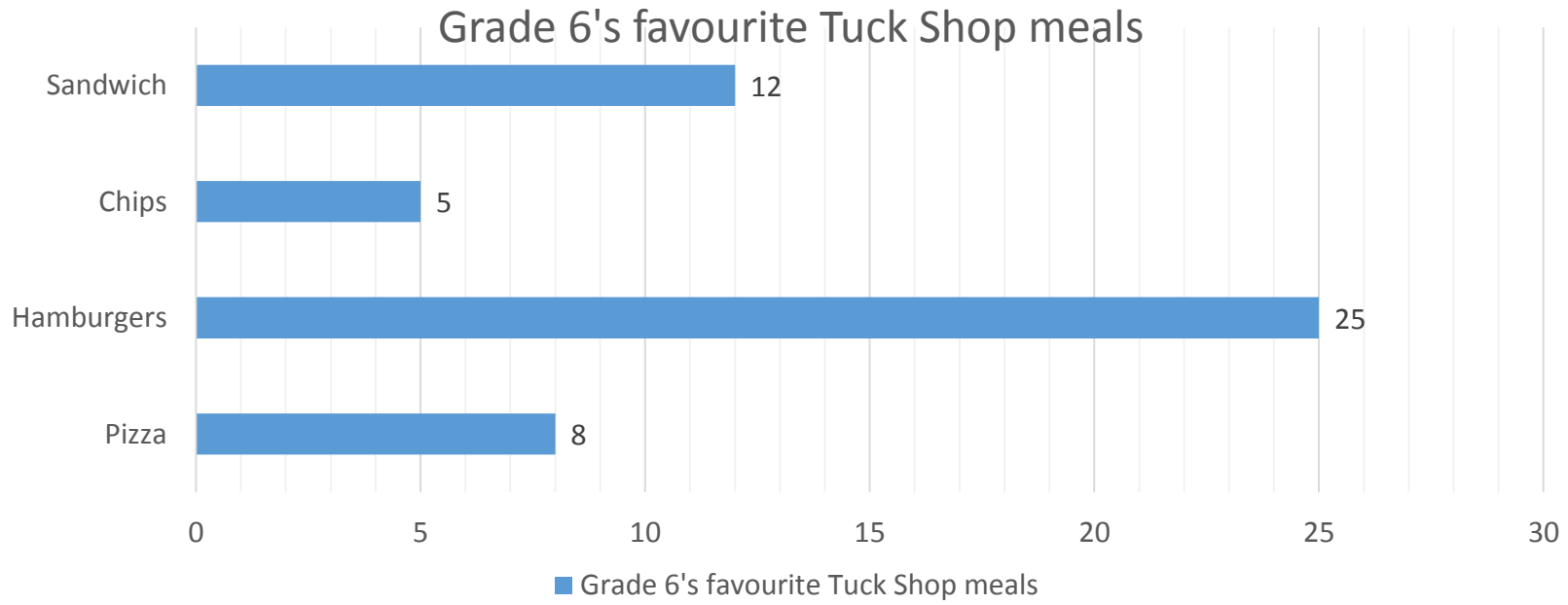


2. What number of learners' favorite food is Salad?

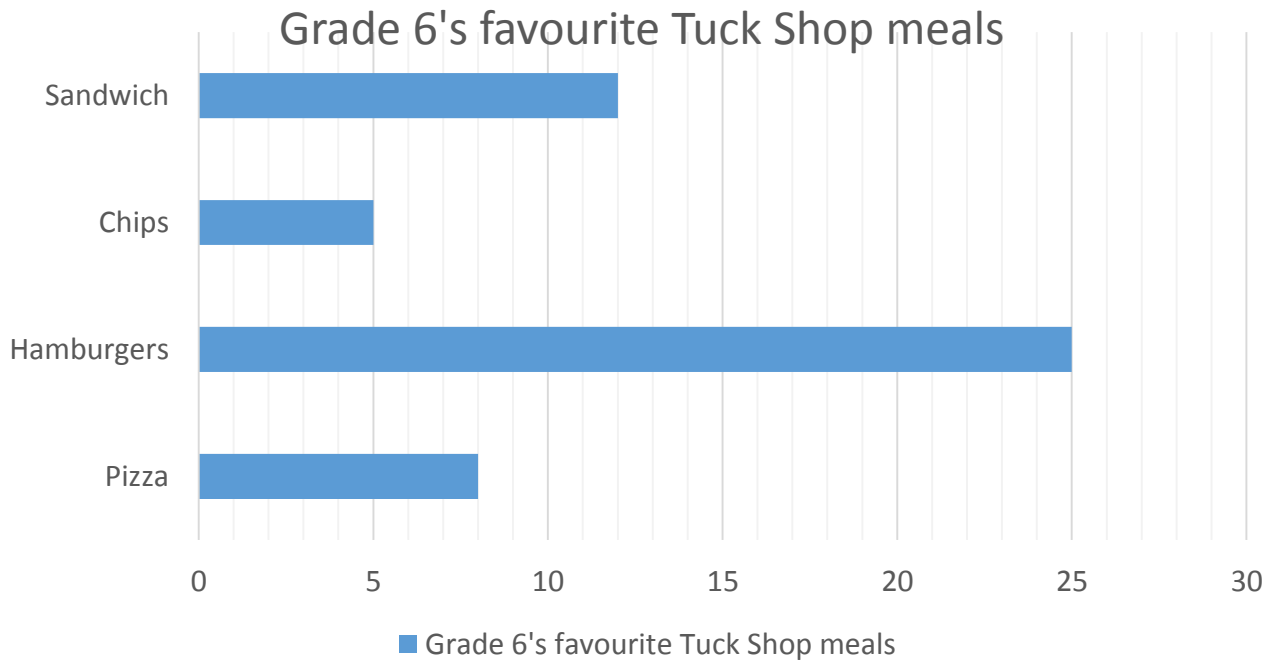
A. A percentages is always out of a 100
B. Simplify the fraction to its simplest form
C. Now its just parts of a whole

Study the graph and answer the questions that follow:

1. What is the total number of learners who participated in this survey?



Study the graph and answer the questions that follow:



2. What percentage of the class
   prefer chips?

There are 50 learners in the class.

$\frac{5}{50}$ like chips

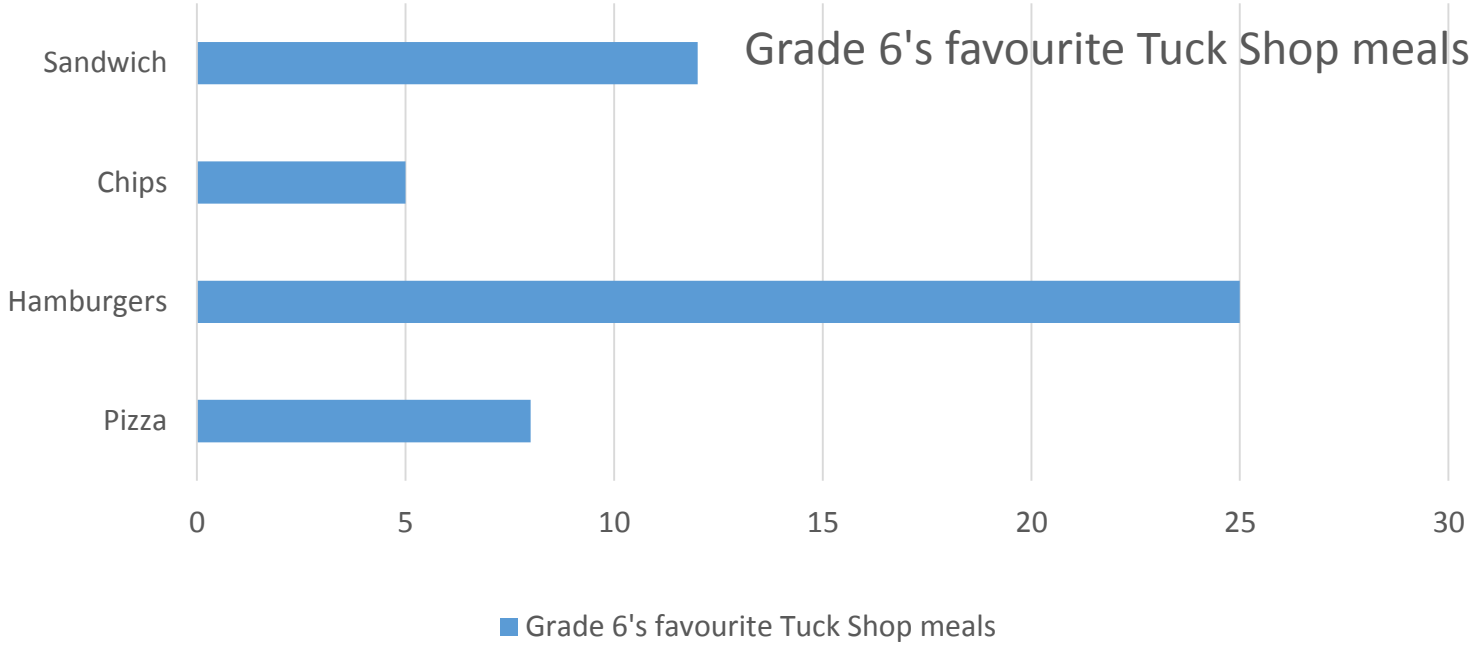
$\frac{5}{50} \times \frac{10}{100} = 10\%$

A. Write a fraction
B. Multiply the fraction by a 100 to get a percentage
C. Simplify the fraction to obtain your percentage

Now try it yourself

3. What percentage of the class prefer hamburgers?

There are 50 learners in the class.



A. Write a fraction
B. Multiply the fraction by a 100 to get a percentage
C. Simplify the fraction to obtain your percentage

Working with decimals and percentages

- Remember decimals are out of 10, 100 or 1000
- Percentages are always out of a 100
- Always simplify fractions

	Percentage	Common fraction	Decimal	Number of learners
Sandwich	$\frac{12}{50} = \frac{24}{100} = 24\%$	$\frac{12}{50} = \frac{6}{25}$	$\frac{12}{50} = \frac{24}{100} = 0{,}24$	12
Chips	$\frac{5}{50} = \frac{10}{100} = 10\%$	$\frac{5}{50} = \frac{1}{10}$	$\frac{5}{50} = \frac{1}{10} = 0{,}1$	5
Hamburgers	$\frac{25}{50} = \frac{50}{100} = 50\%$	$\frac{25}{50} = \frac{1}{2}$	$\frac{25}{50} = \frac{5}{10} = 0{,}5$	25
Pizza	$\frac{8}{50} = \frac{16}{100} = 16\%$	$\frac{8}{50} = \frac{4}{25}$	$\frac{8}{50} = \frac{16}{100} = 0{,}16$	8

- Complete worksheet

Complete the given table using the information from the pie chart. 200 learners were a part of the survey.

Method of transport	Percentage	Fraction in its simplest form	Decimal number	Number of students
Car	30%	$\frac{30 \div 10}{100 \div 10} = \frac{3}{10}$	0,30 or 0,3	$\frac{3}{10}$ of 200 = 200 ÷ 10 = 20, 20 × 3 = 60
On foot	20%	$\frac{20 \div 10}{100 \div 10} = \frac{2}{10} = \frac{1}{5}$	0,20 or 0,2	$\frac{2}{10}$ of 200 = 200 ÷ 10 = 20, 20 × 2 = 40
Bus	$\frac{1 \times 25}{4 \times 25} = \frac{25}{100}$ 25%	$\frac{50 \div 50}{200 \div 50} = \frac{1}{4}$	0,25	50
Metro	10%	$\frac{10 \div 10}{100 \div 10} = \frac{1}{10}$	0,10 or 0,1	$\frac{1}{10}$ of 200 = 200 ÷ 10 = 20, 20 × 1 = 20
Bicycle	15%	$\frac{15 \div 5}{100 \div 5} = \frac{3}{20}$	0,15	$\frac{3}{20}$ of 200, 200 ÷ 20 = 10, 10 × 3 = 30

Mode, median and mean

- Always arrange data in ascending order.

Mode: the number/s that appear the most

Median: the middle number.

$$n = \text{the amount of numbers}$$

$$\frac{n+1}{2} = \text{the position of the number that is in the middle}$$

Mean: the average of the data

$$\frac{\text{the sum of all the numbers}}{\text{amount of numbers}} = \text{mean}$$

32, 37, 35, 34, 25, 41, 34

Ascending order:

Mode:

Median:

Mean:

2, 5, 3, 4, 8, 2, 5, 3, 10, 11, 2

Ascending order:

Mode:

Median:

Mean:

Memo

1.) mode: 34

Median : 34

Mean:
$\frac{238}{7} = 34$

2.)mode: 2

Median: 4

Mean:
$\frac{55}{11} = 5$