

Level 4: Statistics 2

1) Learn how to draw or interpret a pie chart

Before drawing a pie chart, it is important to work out the correct angle for each sector, for example: -

Favourite Holiday Destination			
	Number	Calculation	Angle (rounded to nearest degree)
UK	57	$\frac{57}{338} \times 360$	61°
Europe	148	$\frac{148}{338} \times 360$	158°
North America	87	$\frac{87}{338} \times 360$	93°
Other	46	$\frac{46}{338} \times 360$	50°
TOTALS	338		362°

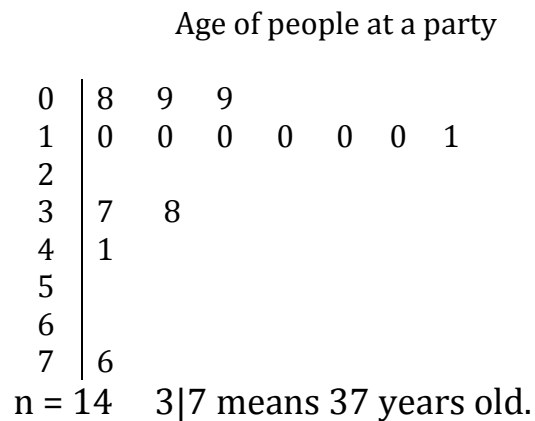
NOTE: When the angles have to be rounded off, the final total may not be exactly 360°.

Measuring the angle will allow you to calculate the number of people it represents if you know how many the whole pie chart represents, for example:-

A piechart shows the results of a survey of **200** people's favourite colour. The sector representing green is **34°**. How many people chose green?

$$\text{Number of people} = \frac{34}{360} \times 200 = 18.8888..... \text{ i.e. } 19 \text{ people.}$$

2) Learn how to draw or interpret a stem and leaf diagram.



From the example above you can see :-

The youngest person at the party was 8 years old.

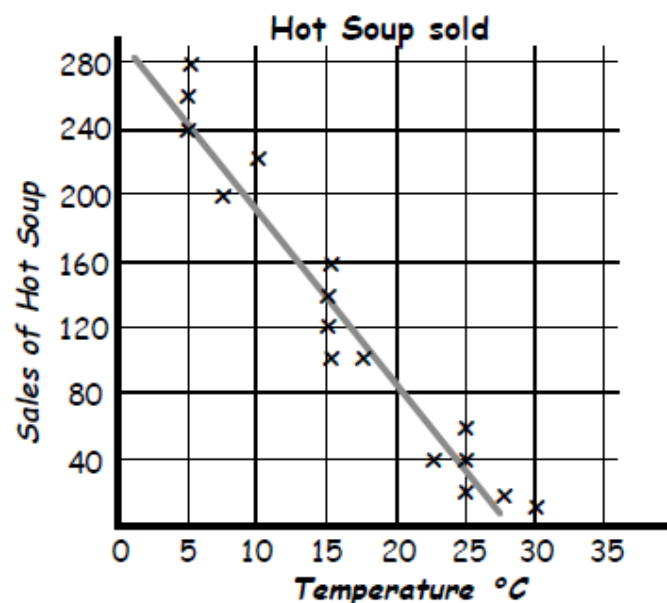
The oldest person was 76 years old. (a grandparent?).

Most people at the party were 10 years old. (a child's birthday party?)

No-one at the party was in their twenties, fifties or sixties.

There were 14 people at the party. (no need to count "n = 14")

3) Learn how to draw and interpret a scattergraph, including the line of best fit.



This scatter graph shows that the warmer the day, the lower the number of hot soups are sold.

Each cross represents one day's sales. For example, the highest cross on the graph shows that one day it was 5°C and 280 soups were sold.

The straight grey line is the "line of best fit". You may be asked to add a line of best fit to a scatter graph. Make sure it follows the general trend of the points and there are roughly the same numbers of points above and below the line.

The line of best fit is used to estimate values, for example on a day when the temperature was 20°C you would expect to sell about 80 soups.

4) Learn how to calculate the mean from a frequency table.

Number of pets	Frequency
0	6
1	9
2	7
3	0
4	2

The frequency table above shows the results of a survey in which people were asked how many pets they had. Extend the frequency table to calculate the mean number of pets to one decimal place.

Number of pets	Frequency	Number × Frequency
0	6	$0 \times 6 = 0$
1	9	$1 \times 9 = 9$
2	7	$2 \times 7 = 14$
3	0	$3 \times 0 = 0$
4	2	$4 \times 2 = 8$
	Total = 24	Total = 31

The total at the bottom of the "Frequency" column tells us how many people responded to the survey (24).

The total at the bottom of the "Number × Frequency" column tells us how many pets these people had altogether (31).

$$\text{Mean} = 31 \div 24 = 1.291666\dots$$

Mean number of pets rounded to one decimal place = 1.3

6) Solve problems such as: -

- a) From the stem and leaf diagram below, find the mean, median and modal price of a packet of crisps.

Price of a packet of crisps

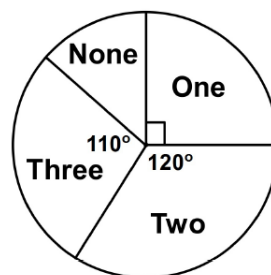
5		5								
6		5	9	9						
7		2	5	5	5	9				
8		1								

$n = 10$ 8|1 means 81p

- b) Ten people sat two tests (both out of 10). The results are shown in the table below: -

Test 1	2	3	4	5	7	8	8	9	9	10
Test 2	1	2	3	3	5	5	6	6	7	7

- Which test was easier? Justify your answer by calculation.
 - Draw a scatter graph for these results with the results for Test 1 on the x-axis and the results for Test 2 on the y-axis.
 - Draw the line of best fit.
 - Use your line of best fit to estimate what someone would score in Test 2 if they scored 6 in Test 1.
- c) In a survey 567 people were asked how many siblings (brothers and sisters) they had. The results are shown in the pie chart below. Work out how many people had no siblings.



**REMEMBER TO SHOW ALL YOUR WORKING
AND EXPLAIN YOUR ANSWER FULLY!**