Junior Cert Maths

Free Notes

Bar Charts and Pie Charts

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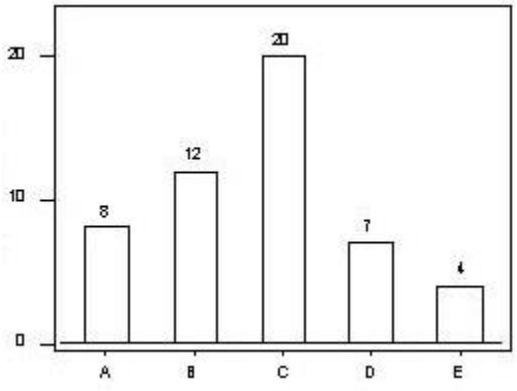
A Bar chart is a simple way of displaying categorical data. The length of each bar represents the frequency. Each bar must be the same width and leave the same space between the bars.

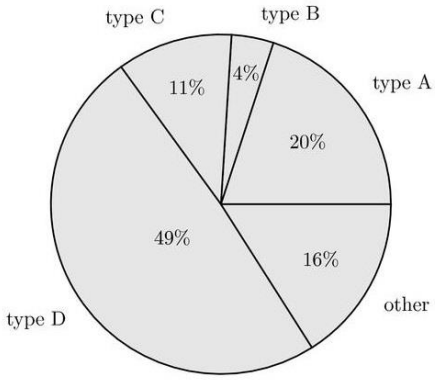
The bar with the greatest length represents the mode



It is very important to label axes correctly and title your charts. A lot of marks can be lost if you do not do this.

A Pie Chart represents categorical data in a circular form. Each sector displays the proportions as angles measured from the centre of the circle. The different sectors of a pie chart must add up to 100%

The largest sector is the mode



Sometimes we are given the angles in a pie-chart. The total number of degrees in a circle is 360 degrees so divide your angle by 360 degrees to get the fraction the angle represents in the pie-chart

For instance a 60° angle would represent $\frac{60}{360} = \frac{1}{6}$

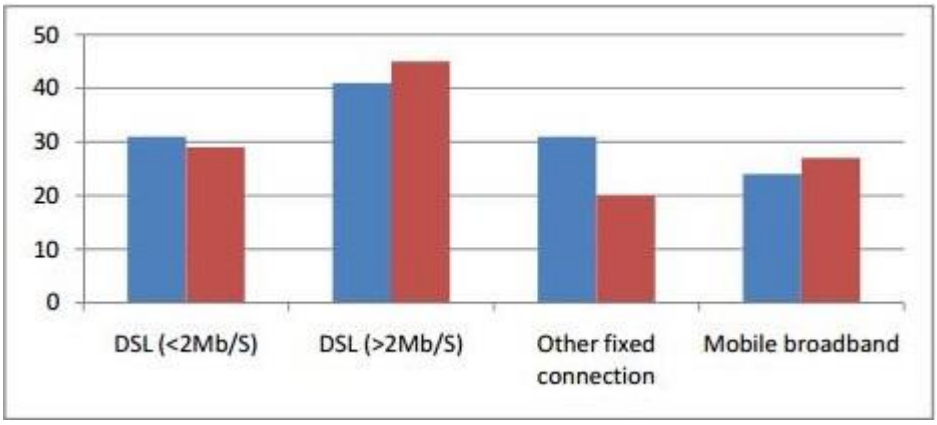
A 45° angle would represent $\frac{45}{360} = \frac{1}{8}$

Questions

1. Data on the type of broadband connection used by enterprises in Ireland for 2008 and 2009 is contained in the table below.

	2008	2009
	%	%
Broadband connection	**84**	**84**
By type of connection		
DSL (<2Mb/S)	**31**	**29**
DSL (>2Mb/S)	**41**	**45**
Other fixed connection	**31**	**20**
Mobile broadband	**24**	**27**

(i) Display the data in a way that allows you to compare the data for the two years



(ii) Identify any trends that you think are shown by the data

The 'fixed connection' went down a lot

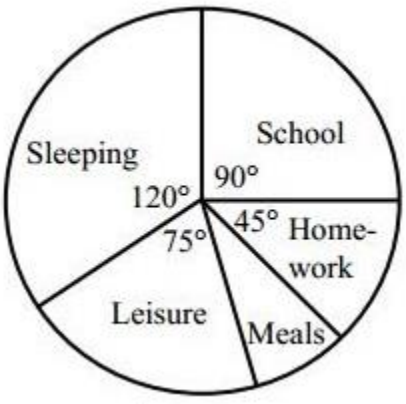
The DSL>2Mb (faster connection) went up

The DSL<2Mb (slower connection) went down

No increase in broadband connection

Mobile broadband went up slightly

2. The pie chart shows how Mary spends her time over a typical 24 hour period



Calculate the amount of time she spends at each activity

Sleeping **=** $\frac{120}{360} = \frac{1}{3}$ = 8 hours

School = $\frac{90}{360} = \frac{1}{4}$ = 6 hours

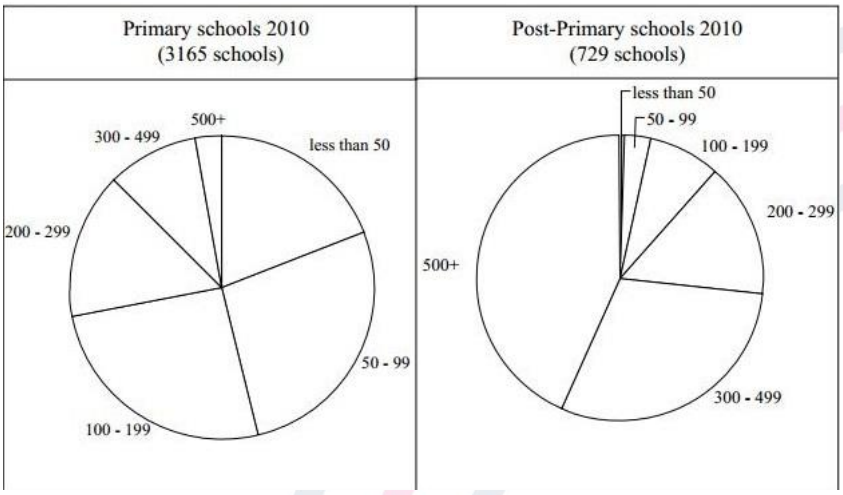
Homework = $\frac{45}{360} = \frac{1}{8}$ = 3 hours

Leisure = $\frac{75}{360} = \frac{5}{24}$ = 5 hours

Meals :360 - (120 + 90 +75 + 45) = 30

Meals = $\frac{30}{360} = \frac{1}{12}$ = 2 hours

3. The number of students attending primary and post-primary schools in Ireland in 2010 is illustrated in the pie-charts below



(i) The angle in the slice for Primary schools with between 100 and 199 pupils is 93·725°.Calculate the number of schools in this category.

Express 93.725° as a fraction of the total amount which is 360°

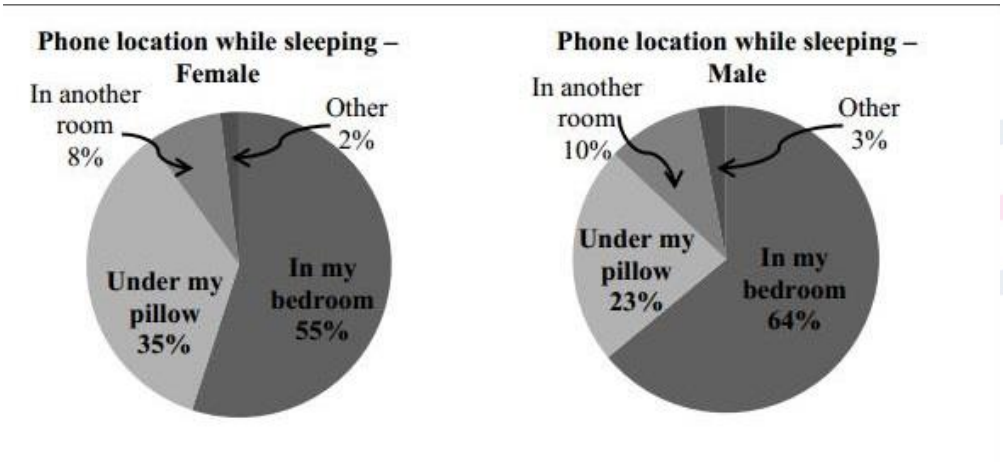
$\frac{93.75}{360}$ = 0.2604

(3165)(0.2604) = 824.17 Approximately 824 Schools

(ii) Mary claims that the charts show that there is roughly the same number of post-primary schools as primary schools in the 200-299 range. Do you agree with Mary? Give a reason for your answer based on the data in the chart

Yes as you can see that the size of the 200-299 sector is roughly the same size in both pie-charts

4. In total 7150 second level school students from 216 schools completed the 2011/2012 phase 11 CensusAtSchool questionnaire. The questionnaire contained a question relating to where students keep their mobile phones while sleeping.



(i) Given that this question was answered by 4171 girls and 2979 boys, calculate how many female students kept their mobile phones under their pillows.

We want to get 35% of 4171

(4171)(0.35) = 1459.85 So approximately 1460 female students

(ii) Calculate the overall percentage of students who kept their mobile phones under their pillows.

First we find the number of male students who keep their phones under their pillows

23% of 2979

(2979)(0.23) = 685.17 So approximately 685 male students

Now we get a percentage of the total

$\frac{685+1460}{7150}$ = 0.3 = 30%

(iii) A new pie chart is to be drawn showing the mobile phone location for all students. Calculate the measure of the angle that would represent the students who kept their mobile phones under their pillows.

30% = 0.3

360 degrees in a circle and we want 30% of the sector so we multiply 360 by 0.3

360(0.3) = 108°