**Cirque Orientation**

*In the northern hemisphere, cirques are nearly always orientated between NW (315°) and SE (135°) with the peak frequency at NE (45°).*

1. Explain why you think the above statement should be so – remember there are **two** parts to the statement and **both** need to be explained.
2. Based on this information, state two suitable hypotheses that could be tested: one should refer to cirque orientation in the northern hemisphere and the other should refer to peak frequency.

*The table below shows the lip orientation of 15 cirques in the Glyders group of peaks in Snowdonia, N Wales and 15 from the Isle of Arran, Scotland.*

*Lip orientation is the direction of an imaginary line drawn from the centre of the backwall to the centre of the lip or threshold (see right):*

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Lip orientation (degrees)** | | | | | | | | | | | | | | |
| **Glyders** | 30 | 60 | 45 | 55 | 75 | 50 | 80 | 50 | 10 | 15 | 10 | 35 | 45 | 50 | 85 |
| **Arran** | 05 | 05 | 10 | 55 | 15 | 30 | 95 | 05 | 185 | 70 | 120 | 40 | 30 | 115 | 110 |

1. (a) To test your hypotheses, you need to look at the frequency distribution of the data from each group. Explain why.
   1. For each group calculate the mean, median and mode orientation *(*these are called *measures of central tendency*). How are these results useful in testing your hypotheses? What do they tell you about the data?
   2. When you calculate a mean, mode or median, you should also look at the degree to which the data is spread around this single value (i.e. the degree of variation). Explain why.
   3. Which method should you use to determine the degree of variation with:
      1. the mean?
      2. the median?
   4. Calculate the degree of variation from the mean and the median for each group separately.
   5. Another way to look at the frequency distribution is to present the data graphically. Why is this more useful than just using statistics?
   6. A radial diagram would be an appropriate graphical technique to show the frequency distribution of the data. Why?
   7. Use this technique to present the data.
2. Interpret your results, draw a conclusion with reference to your hypotheses and offer reasons for your findings.