Week 1 – Percentages

1. **Reverse Percentages:** Find the percentage of the origin amount, using the percentage given in the question, Convert this percentage to a decimal and divide the value given after the change to find the original amount. Look out for words like '**after**' '**before**' or '**original**'

   A jumper was priced at £48.60 after a 10% **reduction**. Find its original price (**OP**). 100% - 10% = 90% = 0.90: percentage of OP (note if the price was **increased** then the percentage of the OP 100%+10%)

   OP = $\frac{£48.60}{0.90}$ = £ 54

   Check – if the price was reduce the OP would be bigger and if the price was decrease the OP would be less.

Week 2 – Proportion

1. **Direct Proportion:** If two quantities are in direct proportion, as one increases, the other increases by the same percentage.
   - An equation of the form **y = kx** represents direct proportion, where **k** is the constant of proportionality.
2. **Inverse Proportion (or indirect proportion)** If two quantities are inversely proportional, as one increases, the other decreases by the same percentage.
   - An equation of the form **y = $\frac{k}{x}$** represents inverse proportion, where **k** is the constant of proportionality.
3. **The symbol ∝** means is proportional to.

Week 3 – Data Analysis (H/F)

1. **Mean**: If the data is grouped find the midpoint of each group first!
   - Multiply each piece of data by the frequency.
   - Then add each of these values up to find the total.
   - Then divide this by the total frequency.
2. **Mode/Modal Class:** Find the group with the highest frequency. The data is the mode/ modal class
3. **Median:** Find the total frequency, half it to find where the middle value is. The data in the table is in order. Count down through the frequencies until you find the middle persons values.
4. **Range:** Difference between the largest and lowest data values.
5. **Cumulative Frequency** is a running total.
6. **Lower Quartile (LQ)**: 25% of the data is less than the lower quartile.
7. **Median (Q2)**: 50% of the data is less than the median.
8. **Upper Quartile (UQ)**: 75% of the data is less than the upper quartile.
9. **Interquartile Range (IQR)**: represents the middle 50% of the data. (UQ-LQ)

Week 4 – Representing Data (H/F)

1. **Frequency Tables:** A record of how often each value in a set of data occurs.
2. **Bar Charts**: Used to compare discrete data. Ensure you use a clear scale. Bars should be separate and the same width. All parts should be labelled.
   - Compound/Composite Bar Charts show data stacked on top of each other.
   - Comparative/Dual Bar Charts show data side by side.
3. **Line Graphs**: Used to show a trend over time. It is plotted as a series of points, which are then joined with straight lines. The ends of the line graph do not have to join to the axes.
4. **Pie Charts:** Used to represents groups of data. Divide 360 by the total frequency, this shows the degrees per person.
   - Multiply each frequency by this number this gives the size of each sector.
   - Make sure all the angles add to 360.
5. **Scatter Graphs:** Are used to look at links between two types of data, e.g. height and weight. Plot each point like a coordinate
   - Key Concepts-Line of Best fit

Week 5 – Representing Data (H)

1. **Histograms**: A visual way to display frequency data using bars. Bars can be unequal in width. Histograms show frequency density on the y-axis, not frequency.
2. **A cumulative frequency diagram** is a curve that goes up. It looks a little like a stretched-out S shape. Plot the cumulative frequencies at the end-point of each interval.
3. **Box Plots**: The minimum, lower quartile, median, upper quartile and maximum are shown on a box plot. A box plot can be drawn independently or from a cumulative frequency diagram.

Week 6 –Transformations (F) and Inequalities (H)

1. **Translate:** means to move a shape. The shape does not change size or orientation.
2. **Rotation**: The size does not change, but the shape is turned around a point. (Hint: Use tracing paper)
3. **Reflection:** The size does not change, but the shape is 'flipped' like in a mirror
4. **Enlargement:** The shape will get bigger or smaller. Multiply each side by the scale factor.
5. **Quadratic Inequalities:** Sketch the quadratic graph of the inequality. If the expression is **> 0** then the answer will be above the x-axis. If the expression is **< 0** then the answer will be below the x-axis. (Hint: look carefully at the inequality symbol in the question. Look carefully if the quadratic is a positive or negative parabola.)