Linear Law – Formulae List

1. Drawing lines of best fit

Line of best fit has 2 characteristics:
1. It passes through as many points as possible,
2. The number of points which are not on the line of best fit are equally distributed on the both sides of the line.

Steps to draw a line of best fit:
1. Construct a table consisting the given variables.
2. Plot a graph of Y against X, using the scale specified AND draw a line of best fit.
3. Calculate the gradient, m, and get the Y-intercept, c, from the graph.
4. Re-write the original equation given and reduce it to linear form.
5. Compare with values of m and c obtained, find the values of the unknowns required.

Recall:
1. **Equation of a straight line if two points are given:**

$$Y - y_1 = m(X - x_1)$$

2. **Equation of a straight line if m and c are given:**

$$Y = mX + c$$

3. To reduce non-linear functions to linear form

Tips:
1. The equation must have one constant (without x and y).
2. Y cannot have constant, but can have x and y.
3. X cannot have y., but can have x and constant.

2. Equations of lines of best fit

1. A set of two variables are related non linearly can be converted to a linear equation. The line of best fit can be written in the form

$$Y = mX + c$$

where
X and Y are in terms of x and/or y
m is the gradient,
c is the Y-intercept

2. The graph of $Y = mX + c$ can be used to find the values of constants of the non-linear equation and others information relating the two variables.

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