X_0	1
X_1	1.5
X_2	1.35401
X_3	1.24513
X_4	1.18198
X_5	1.16173
X_6	1.15989
X_7	1.15988

The tangent is now barely distinguishable from the curve, the tangent crosses the x axis at x=1.15988 and so the root lies in the interval [1.159, 1.160]. This can be confirmed by a change of sign:

f(1.159)	-0.021
f(1.160)	0.003

So the root can be approximated to be 1.160 (to 3 d.p.).

The Newton-Raphson method is both time consuming and is probably the most difficult of all 3 methods – requiring differentiation of the equation and then other processes to obtain the desired result. However, it is more reliable as a method in that it has fewer fail conditions than the other methods i.e. it only fails when the prediction is near a turning point.

In conclusion, these 3 methods all have their failings, the quickest is most likely the rearrangement method, the easiest is the decimal search and the most reliable is the Newton-Raphson method.

The software I used was 'Microsoft Excel' for calculations and 'Omnigraph' for any graphs shown. Microsoft Excel provided an easy means of calculations – much faster than using a calculator as once the formula is in place it simply needs to be 'dragged down' to replicate it. However, the formulas did take some time to construct and without brackets in the appropriate places the formula would be incorrect – that said, Excel does provide a very presentable means of displaying data for analysis.

Omnigraph was very useful for this as it has a very versatile scale adjustment system, also a tool that creates tangents at any point. However, the scale automatically adjusts to sometimes problematic proportions – usually losing the origin in the process – so two graphs are required to properly display the methods (one showing in relation to x axis, one showing graph in general).