Edexcel AS Mathematics Graphs and transformations

Section 1: Sketching graphs of functions

Crucial points

1. **Make sure that you know the basic rules about polynomial graphs**
   A polynomial of degree n crosses the x axis at most n times and has at most $n-1$ turning points.
   A repeated root means that the graph touches the x-axis at this point.

2. **Make sure that you know what a reciprocal graph looks like**
   You should recognise and be able to sketch graphs of the form $y = \dfrac{k}{x}$,
   where k is a constant. You should also know what is meant by an asymptote.

3. **Know what is meant by proportionality**
   If y is directly proportional to x, then $y = kx$, where k is a constant.
   If y is inversely proportional to x, then $y = \dfrac{k}{x}$.

4. **Make sure that you know what is expected in a sketch graph**
   If you are asked to sketch a graph, you do NOT need to plot points. You should show the basic shape of the graph, and label the points where the graph cuts the x-axis and the y-axis.

5. **Know how to find intersection points of graphs**
   Finding the intersection points of $y = f(x)$ and $y = g(x)$ is equivalent to solving the equation $f(x) = g(x)$. Sketch graphs can be helpful to give you an idea of the number of roots and their approximate locations.