Wavy Curve Method.

Let $f(x) = (x - a_1)^{k_1}(x - a_2)^{k_2}(x - a_3)^{k_3}.......(x - a_{n-1})^{k_{n-1}}(x - a_n)^{k_n}$ .....(i)

Where $k_1, k_2, k_3 ..., k_n \in N$ and $a_1, a_2, a_3, ..., a_n$ are fixed natural numbers satisfying the condition

$a_1 < a_2 < a_3 ..... < a_{n-1} < a_n$

First we mark the numbers $a_1, a_2, a_3, ..., a_n$ on the real axis and the plus sign in the interval of the right of the largest of these numbers, i.e. on the right of a_n. If k_n is even then we put plus sign on the left of a_n and if k_n is odd then we put minus sign on the left of a_n. In the next interval we put a sign according to the following rule :

When passing through the point a_{n-1} the polynomial f(x) changes sign if k_{n-1} is an odd number and the polynomial f(x) has same sign if k_{n-1} is an even number. Then, we consider the next interval and put a sign in it using the same rule. Thus, we consider all the intervals. The solution of $f(x) > 0$ is the union of all intervals in which we have put the plus sign and the solution of $f(x) < 0$ is the union of all intervals in which we have put the minus sign.