

Method of Intervals

$$f(x) = (x - a_1)^{k_1} (x - a_2)^{k_2} (x - a_3)^{k_3} \cdot \dots \cdot (x - a_n)^{k_n} = 0$$

$$a_1 < a_2 < a_3 < \dots < a_n$$

$$k_1, k_2, k_3, \dots, k_n \in \mathbb{Z} \text{ (whole numbers)}$$

1. If there is a “+” sign in front of a function then the first interval from the right side will be positive and then alternates in the following intervals.
2. If there is a “-“ sign in front of a function then the first interval from the right side will be negative and then alternates in the following intervals.
3. If k is an odd number then the sign changes; if k is an even number then the sign does not change.

Example:

$$f(x) = (x + 1)^3 (x - 1)(x - 2)^2 (x - 3)(x - 5) = 0$$

