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| --- | --- | --- |
|  | Fixed Point |  |
| * Problem Statement | For the function : | |
| * Requirements | Use Fixed point Iteration method to compute the root of the function with an initial guess of 0.0 for 150 iterations or until the approximate error < undetermined | |
| * Solution: The formula of the Fixed-Point Iteration method is:   0.13400  1. The first iteration :  0.0 0.13400    ---  The 1st iteration doesn’t have either nor , as there isn’t a previous approximation.  2. The second iteration :  0.13400 0.72735    100.000000000000  3. The third iteration :  6.70319 6.70319    81.57690  Then, the root of the function after achieving the required conditions is :  inf  And so on for the rest iterations until reaching a termination condition, as the following table: | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| iteration | x | f(x) | Et(%) | Ea(%) |
| 0 | 0.0 | 0.134000000000000 | --- | --- |
| 1 | 0.134000000000000 | 0.59334758336 | --- | 100.000000000000 |
| 2 | 0.72734758336 | 5.975841104352806 | --- | 81.5768962370118 |
| 3 | 6.703188687712807 | 1638.3859560539531 | --- | 89.14923005683465 |
| 4 | 1645.089144741666 | 21558053051.68221 | --- | 99.59253340713245 |
| 5 | 21558054696.771355 | 4.849244368148506e+31 | --- | 99.99999236902786 |
| 6 | 4.849244368148506e+31 | 5.51909121642137e+95 | --- | 100.0 |
| 7 | 5.51909121642137e+95 | 8.13669575603868e+287 | --- | 100.0 |
| 8 | 8.13669575603868e+287 | inf | --- | 100.0 |
| 9 | inf | inf | --- | nan |
| 10 | inf | inf | --- | nan |
| 11 | inf | inf | --- | nan |
| 12 | inf | inf | --- | nan |
| 13 | inf | inf | --- | nan |
| 14 | inf | inf | --- | nan |
| 15 | inf | inf | --- | nan |
| 16 | inf | inf | --- | nan |
| 17 | inf | inf | --- | nan |
| 18 | inf | inf | --- | nan |
| 19 | inf | inf | --- | nan |
| 20 | inf | inf | --- | nan |
| 21 | inf | inf | --- | nan |
| 22 | inf | inf | --- | nan |
| 23 | inf | inf | --- | nan |
| 24 | inf | inf | --- | nan |
| 25 | inf | inf | --- | nan |
| 26 | inf | inf | --- | nan |
| 27 | inf | inf | --- | nan |
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