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| --- | --- | --- |
|  | Newton Raphson |  |
| * Problem Statement | For the function : | |
| * Requirements | Use the Newton-Raphson method to locate the root of function using the initial guess 0.0.Continue for 150 iterations or until the approximate error undetermined, | |
| * Solution: The formula of the Newton-Raphson method is:         1. The first iteration :  -0.04685  =---    The 1st iteration doesn’t have either nor , as there isn’t a previous approximation.  2. The second iteration :  -0.04974    =100.000000000000  3. The third iteration :  -0.04975    =5.80815  Then, the root of the function after achieving the required conditions is :  -0.04975  And so on for the rest iterations until reaching a termination condition, as the following table: | | |
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|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| iteration | x | f(x) | Et(%) | Ea(%) |
| 0 | 0.0 | 0.134000000000000 | --- | --- |
| 1 | -0.0468531468531469 | 0.00738302260407694 | --- | 100.000000000000 |
| 2 | -0.0497422535941871 | 2.41703030566254e-5 | --- | 5.80815409894872 |
| 3 | -0.04975177404433201 | 2.59925053702759e-10 | --- | 0.01913590083526088 |
| 4 | -0.04975177414671619 | 0 | --- | 2.0579001697892566e-07 |
| 5 | -0.04975177414671619 | 0 | --- | 0.0 |
| 6 | -0.04975177414671619 | 0 | --- | 0.0 |
| 7 | -0.04975177414671619 | 0 | --- | 0.0 |
| 8 | -0.04975177414671619 | 0 | --- | 0.0 |
| 9 | -0.04975177414671619 | 0 | --- | 0.0 |
| 10 | -0.04975177414671619 | 0 | --- | 0.0 |
| 11 | -0.04975177414671619 | 0 | --- | 0.0 |
| 12 | -0.04975177414671619 | 0 | --- | 0.0 |
| 13 | -0.04975177414671619 | 0 | --- | 0.0 |
| 14 | -0.04975177414671619 | 0 | --- | 0.0 |
| 15 | -0.04975177414671619 | 0 | --- | 0.0 |
| 16 | -0.04975177414671619 | 0 | --- | 0.0 |
| 17 | -0.04975177414671619 | 0 | --- | 0.0 |
| 18 | -0.04975177414671619 | 0 | --- | 0.0 |
| 19 | -0.04975177414671619 | 0 | --- | 0.0 |
| 20 | -0.04975177414671619 | 0 | --- | 0.0 |
| 21 | -0.04975177414671619 | 0 | --- | 0.0 |
| 22 | -0.04975177414671619 | 0 | --- | 0.0 |
| 23 | -0.04975177414671619 | 0 | --- | 0.0 |
| 24 | -0.04975177414671619 | 0 | --- | 0.0 |
| 25 | -0.04975177414671619 | 0 | --- | 0.0 |
| 26 | -0.04975177414671619 | 0 | --- | 0.0 |
| 27 | -0.04975177414671619 | 0 | --- | 0.0 |
| 28 | -0.04975177414671619 | 0 | --- | 0.0 |
| 29 | -0.04975177414671619 | 0 | --- | 0.0 |
| 30 | -0.04975177414671619 | 0 | --- | 0.0 |
| 31 | -0.04975177414671619 | 0 | --- | 0.0 |
| 32 | -0.04975177414671619 | 0 | --- | 0.0 |
| 33 | -0.04975177414671619 | 0 | --- | 0.0 |
| 34 | -0.04975177414671619 | 0 | --- | 0.0 |
| 35 | -0.04975177414671619 | 0 | --- | 0.0 |
| 36 | -0.04975177414671619 | 0 | --- | 0.0 |
| 37 | -0.04975177414671619 | 0 | --- | 0.0 |
| 38 | -0.04975177414671619 | 0 | --- | 0.0 |
| 39 | -0.04975177414671619 | 0 | --- | 0.0 |
| 40 | -0.04975177414671619 | 0 | --- | 0.0 |
| 41 | -0.04975177414671619 | 0 | --- | 0.0 |
| 42 | -0.04975177414671619 | 0 | --- | 0.0 |
| 43 | -0.04975177414671619 | 0 | --- | 0.0 |
| 44 | -0.04975177414671619 | 0 | --- | 0.0 |
| 45 | -0.04975177414671619 | 0 | --- | 0.0 |
| 46 | -0.04975177414671619 | 0 | --- | 0.0 |
| 47 | -0.04975177414671619 | 0 | --- | 0.0 |
| 48 | -0.04975177414671619 | 0 | --- | 0.0 |
| 49 | -0.04975177414671619 | 0 | --- | 0.0 |
| 50 | -0.04975177414671619 | 0 | --- | 0.0 |
| 51 | -0.04975177414671619 | 0 | --- | 0.0 |
| 52 | -0.04975177414671619 | 0 | --- | 0.0 |
| 53 | -0.04975177414671619 | 0 | --- | 0.0 |
| 54 | -0.04975177414671619 | 0 | --- | 0.0 |
| 55 | -0.04975177414671619 | 0 | --- | 0.0 |
| 56 | -0.04975177414671619 | 0 | --- | 0.0 |
| 57 | -0.04975177414671619 | 0 | --- | 0.0 |
| 58 | -0.04975177414671619 | 0 | --- | 0.0 |
| 59 | -0.04975177414671619 | 0 | --- | 0.0 |
| 60 | -0.04975177414671619 | 0 | --- | 0.0 |
| 61 | -0.04975177414671619 | 0 | --- | 0.0 |
| 62 | -0.04975177414671619 | 0 | --- | 0.0 |
| 63 | -0.04975177414671619 | 0 | --- | 0.0 |
| 64 | -0.04975177414671619 | 0 | --- | 0.0 |
| 65 | -0.04975177414671619 | 0 | --- | 0.0 |
| 66 | -0.04975177414671619 | 0 | --- | 0.0 |
| 67 | -0.04975177414671619 | 0 | --- | 0.0 |
| 68 | -0.04975177414671619 | 0 | --- | 0.0 |
| 69 | -0.04975177414671619 | 0 | --- | 0.0 |
| 70 | -0.04975177414671619 | 0 | --- | 0.0 |
| 71 | -0.04975177414671619 | 0 | --- | 0.0 |
| 72 | -0.04975177414671619 | 0 | --- | 0.0 |
| 73 | -0.04975177414671619 | 0 | --- | 0.0 |
| 74 | -0.04975177414671619 | 0 | --- | 0.0 |
| 75 | -0.04975177414671619 | 0 | --- | 0.0 |
| 76 | -0.04975177414671619 | 0 | --- | 0.0 |
| 77 | -0.04975177414671619 | 0 | --- | 0.0 |
| 78 | -0.04975177414671619 | 0 | --- | 0.0 |
| 79 | -0.04975177414671619 | 0 | --- | 0.0 |
| 80 | -0.04975177414671619 | 0 | --- | 0.0 |
| 81 | -0.04975177414671619 | 0 | --- | 0.0 |
| 82 | -0.04975177414671619 | 0 | --- | 0.0 |
| 83 | -0.04975177414671619 | 0 | --- | 0.0 |
| 84 | -0.04975177414671619 | 0 | --- | 0.0 |
| 85 | -0.04975177414671619 | 0 | --- | 0.0 |
| 86 | -0.04975177414671619 | 0 | --- | 0.0 |
| 87 | -0.04975177414671619 | 0 | --- | 0.0 |
| 88 | -0.04975177414671619 | 0 | --- | 0.0 |
| 89 | -0.04975177414671619 | 0 | --- | 0.0 |
| 90 | -0.04975177414671619 | 0 | --- | 0.0 |
| 91 | -0.04975177414671619 | 0 | --- | 0.0 |
| 92 | -0.04975177414671619 | 0 | --- | 0.0 |
| 93 | -0.04975177414671619 | 0 | --- | 0.0 |
| 94 | -0.04975177414671619 | 0 | --- | 0.0 |
| 95 | -0.04975177414671619 | 0 | --- | 0.0 |
| 96 | -0.04975177414671619 | 0 | --- | 0.0 |
| 97 | -0.04975177414671619 | 0 | --- | 0.0 |
| 98 | -0.04975177414671619 | 0 | --- | 0.0 |
| 99 | -0.04975177414671619 | 0 | --- | 0.0 |
| 100 | -0.04975177414671619 | 0 | --- | 0.0 |
| 101 | -0.04975177414671619 | 0 | --- | 0.0 |
| 102 | -0.04975177414671619 | 0 | --- | 0.0 |
| 103 | -0.04975177414671619 | 0 | --- | 0.0 |
| 104 | -0.04975177414671619 | 0 | --- | 0.0 |
| 105 | -0.04975177414671619 | 0 | --- | 0.0 |
| 106 | -0.04975177414671619 | 0 | --- | 0.0 |
| 107 | -0.04975177414671619 | 0 | --- | 0.0 |
| 108 | -0.04975177414671619 | 0 | --- | 0.0 |
| 109 | -0.04975177414671619 | 0 | --- | 0.0 |
| 110 | -0.04975177414671619 | 0 | --- | 0.0 |
| 111 | -0.04975177414671619 | 0 | --- | 0.0 |
| 112 | -0.04975177414671619 | 0 | --- | 0.0 |
| 113 | -0.04975177414671619 | 0 | --- | 0.0 |
| 114 | -0.04975177414671619 | 0 | --- | 0.0 |
| 115 | -0.04975177414671619 | 0 | --- | 0.0 |
| 116 | -0.04975177414671619 | 0 | --- | 0.0 |
| 117 | -0.04975177414671619 | 0 | --- | 0.0 |
| 118 | -0.04975177414671619 | 0 | --- | 0.0 |
| 119 | -0.04975177414671619 | 0 | --- | 0.0 |
| 120 | -0.04975177414671619 | 0 | --- | 0.0 |
| 121 | -0.04975177414671619 | 0 | --- | 0.0 |
| 122 | -0.04975177414671619 | 0 | --- | 0.0 |
| 123 | -0.04975177414671619 | 0 | --- | 0.0 |
| 124 | -0.04975177414671619 | 0 | --- | 0.0 |
| 125 | -0.04975177414671619 | 0 | --- | 0.0 |
| 126 | -0.04975177414671619 | 0 | --- | 0.0 |
| 127 | -0.04975177414671619 | 0 | --- | 0.0 |
| 128 | -0.04975177414671619 | 0 | --- | 0.0 |
| 129 | -0.04975177414671619 | 0 | --- | 0.0 |
| 130 | -0.04975177414671619 | 0 | --- | 0.0 |
| 131 | -0.04975177414671619 | 0 | --- | 0.0 |
| 132 | -0.04975177414671619 | 0 | --- | 0.0 |
| 133 | -0.04975177414671619 | 0 | --- | 0.0 |
| 134 | -0.04975177414671619 | 0 | --- | 0.0 |
| 135 | -0.04975177414671619 | 0 | --- | 0.0 |
| 136 | -0.04975177414671619 | 0 | --- | 0.0 |
| 137 | -0.04975177414671619 | 0 | --- | 0.0 |
| 138 | -0.04975177414671619 | 0 | --- | 0.0 |
| 139 | -0.04975177414671619 | 0 | --- | 0.0 |
| 140 | -0.04975177414671619 | 0 | --- | 0.0 |
| 141 | -0.04975177414671619 | 0 | --- | 0.0 |
| 142 | -0.04975177414671619 | 0 | --- | 0.0 |
| 143 | -0.04975177414671619 | 0 | --- | 0.0 |
| 144 | -0.04975177414671619 | 0 | --- | 0.0 |
| 145 | -0.04975177414671619 | 0 | --- | 0.0 |
| 146 | -0.04975177414671619 | 0 | --- | 0.0 |
| 147 | -0.04975177414671619 | 0 | --- | 0.0 |
| 148 | -0.04975177414671619 | 0 | --- | 0.0 |
| 149 | -0.04975177414671619 | 0 | --- | 0.0 |
| 150 | -0.04975177414671619 | 0 | --- | 0.0 |

