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|  | {{method}} |  |
| * Problem Statement | For the function f(x). | |
| * Requirements | Use the Bisection method in the interval [{{xl1}},{{xu1}}] to find the root of this equation. Continue for {{iteration}} iterations or until the approximate error {{ approximate}}, where the exact root within the interval is .={{xt}}. | |
| * Solution: * The formula of the bisection method is:   For the first iteration the initial guesses interval {{xl1}},{{xu1}}  ({{xl1}} + ({{xu1}}))÷ 2 = {{xr1}}  {{ea1}}    The 1st iteration doesn’t have either nor , as there isn’t a previous approximation.  {{xl1}} {{fxl1}}  {{xr1}}{{fxr1}}  Since {{multi1}} {{operator1}} then {{newX1}} {{xr2}}.  For the second iteration the initial guesses interval {{xl2}},{{xu2}}  ({{xl2}} + ({{xu2}})) ÷ 2 = {{xr3}}    {{ea2}}  {{xl2}} {{fxl2}}  {{xr2}}{{fxr2}}  Since {{multi2}} {{operator2}} then {{newX2}} {{xr2}}.  For the third iteration the initial guesses interval {{xl3}},{{xu3}}  ({{xl3}} + ({{xu3}})) ÷ 2 = {{xr3}}    {{ea3}}  {{xl3}} {{fxl3}}  {{xr3}}{{fxr3}}  Since {{multi3}} {{operator3}} then {{newX3}} {{xr3}}.  Then, the root of the function after achieving the required conditions is :  {{x\_last}}  And so on for the rest iterations until reaching a termination condition, as the following table: | | |
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