Question: Write a MATLAB function that uses Bisection Method to iterati...

Write a MATLAB *function* that uses Bisection Method to iteratively estimate the positive real root of the

equation ln(x4)=0.7 $\ln(x^4) = 0.7$ in the interval [x_l, x_u] until ε_a is less than ε_s. Note that x^x is in radians.

The *function* should accept 3 parameters: initial x_l, x_u, and ε_s, and return these 5 parameters for each

iteration: xl, xu, xr x_l, x_u, x_r Sign(fxlf(xr)) $f(x_l)f(x_r)\}$ and ε_a. (Hint: Function should return arrays instead of single values).

Please write a script which gives output in the following tabular form for the developed function using

xl=0.5 $x_l = 0.5$, xu=2 $x_u = 2$ and ε_s= 0.1%. Submit the snapshot of the output of the script.

Expert Answer

Anonymous answered this
103 answers

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```
function  m = bisection(f, low, high, tol)
disp('Bisection Method');

% Evaluate both ends of the interval
y1 = feval(f, low);
y2 = feval(f, high);
i = 0;

% Display error and finish if signs are not different
if y1 * y2 > 0
  disp('Have not found a change in sign. Will not continue...');
  m = 'Error'
  return
end

% Work with the limits modifying them until you find
% a function close enough to zero.
disp('Iter    low       high        x0');
while (abs(high - low) >= tol)
   i = i + 1;
   % Find a new value to be tested as a root
   m = (high + low)/2;
   y3 = feval(f, m);
   if y3 == 0
      fprintf('Root at x = %f \n\n', m);
      return
   end
   fprintf('%2i \t %f \t %f \t %f \n', i-1, low, high, m);
```

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Q: The answer should be in MATLAB source (.m) file(s) and snapshot of the output (copied in a single document file) when you run the program for the conditions mentioned in the questions below. Write a MATLAB function that uses Bisection Method to iteratively estimate the root of the equation in the interval [xl, xu] until εa is less than εs. Note that x is in radians. The function...

A: See answer

Q: Please write a MATLAB function satisfy the following with the given output.

A: See answer

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