Solution 29: All tests passed (100%)

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```
function [root, fx, ea, iter] = falsePosition(func, xl, xu, es, maxit, varargin)
%falsePosition finds the root of a function using false position method
if nargin<3
    error('need 3 input arguments')
end

if nargin < 4 || isempty(es)
    es = 0.0001;
end
if nargin < 5 || isempty(maxit)
    maxit = 200;
end

if (func(xl)*func(xu)) > 0
    error('There was no sign change between limits')
end

if func(xl) == 0
    error('lower limit was root')
elseif func(xu) == 0
    error('upper limit was root')
end

iter = 0;
ea = 100;
root = xl;

while ea >= es
    oldroot = root;
    root = xu - (((func(xu))*(xl-xu))/((func(xl))-(func(xu))));
    fx = func(root);
    if root ~= 0
        ea = abs((root-oldroot)/root)*100;
    end
    if root == 0
        ea = 0;
    end

    if sign(fx) == sign(func(xl))
        xl = root;
    elseif sign(fx) == sign(func(xu))
        xu = root;
    else ea = 0;
    end

    iter = iter +1;
    if iter > maxit
        break
    end

end
root = root;
fx = fx;
ea = ea;
iter = iter;
end
```