```matlab
% Q2

% a.
x = 4;
result = 1/(1 + x*x) % derivative of atan(x)


% b.
a = 1;
trueval = 1/(1 + a*a); % derivative of atan(a)
Error = [];% creation of Error array
for i = 1:16 % loop for executive error of different stepsizes
    h = 10^-i;
    expval = (atan(a + h) - atan(a))/h;
    Error(i) = abs(trueval - expval); % creates an array of 1X16
 values of array at different valyes of stepsizes
end
n = [-1: -1: -16];
h = 10.^n; % array of 16 different values of h
loglog(h, Error) % Graph b/w values of h and Error
xlabel('Values of h');
ylabel('Error');
```
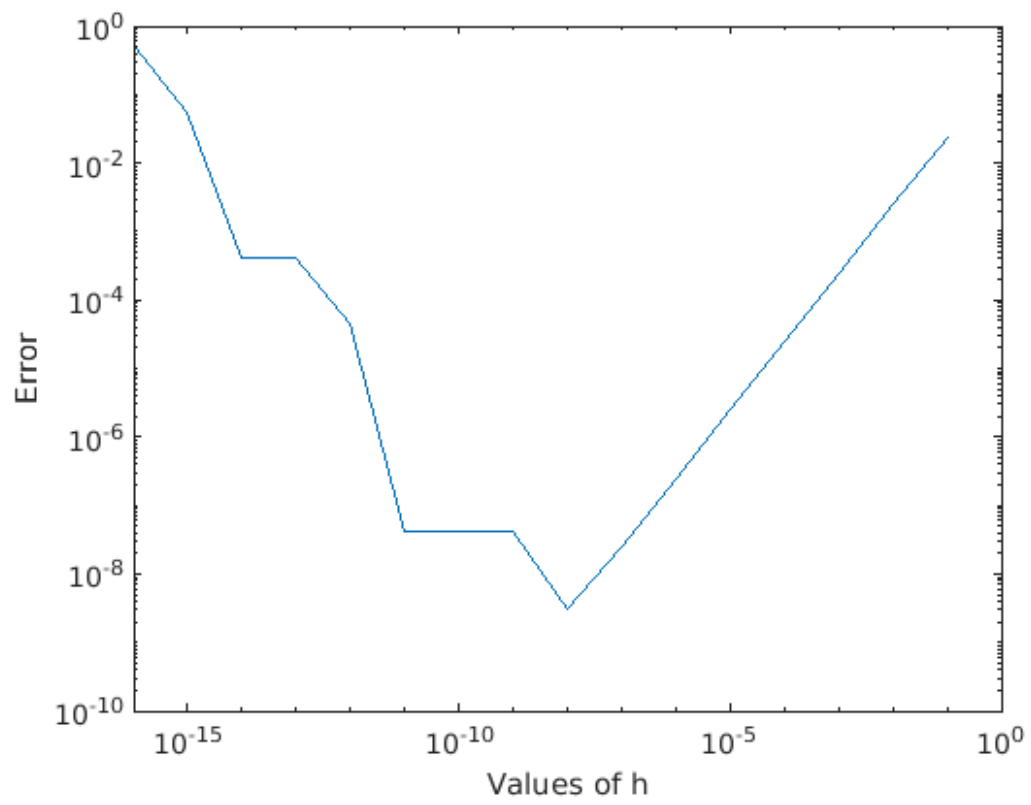
result =

   0.0588

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