```
function [p, how_many_iterations] = steffenson4()

% f(x) = 5^(-x)
f = @(x) 5^(-x);

% how many iterations it takes to approximate x = 5^(-x)
how_many_iterations = 0;

% tolerance
TOL = 10^(-8);

% initial guess
p = 0.5;

% set p0 to an initial value
p0 = 0;

% While the error range is greater than the tolerance, keep applying
 this
% method
while abs((p - p0)/p) >= TOL

    % update values
    p0 = p;
    p1 = f(p0);
    p2 = f(p1);

    % calculate p
    p = p0 - ((p1-p2)*(p1-p2))/(p2 - 2*p1 + p0);

    % increment how many iterations
    how_many_iterations = how_many_iterations + 1;

end

end
```

```
ans =

    0.4696
```

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