
```

% inputs
f = @(x) cos(x)-x;
p0=pi/4; p1= pi/2;
TOL=1e-10; NI = 100;

% loop
i=2;
q0=f(p0); q1=f(p1);
converge=false;
while i <= NI
    p = p1-q1*(p1-p0)/(q1-q0);
    if abs(p-p1)<TOL
        converge = true; break; % the procedure was successful
    end
    i = i+1;
    p0 = p1; % update p0, q0, p1, q1
    q0 = q1;
    p1 = p;
    q1 = f(p);
end

if converge
    fprintf('\n\nApproximate solution P = %.8f\n',p)
    fprintf('With F(P) = %.3e\n',f(p))
    fprintf('Number of iterations = %3i\n',i)
    fprintf('Tolerance = %.3e |p-pold| = %.3e\n',TOL, abs(p1-p))
end

```

```

Approximate solution P = 0.73908513
With F(P) = 0.000e+00
Number of iterations = 6
Tolerance = 1.000e-10 |p-pold| = 8.368e-11

```

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