
```

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

% STEP 1
i = 1;
converge = false; % convergence flag
% STEP 2
while i<=NI
    % STEP 3: compute p(i)
    p = g(p0);
    err = abs(p-p0);
    % STEP 4: check if meets the stopping criteria
    if (err< TOL)
        converge = true; break
    else
        i = i+1; % STEP 5
        p0 = p; % STEP 6: update p0
    end
end

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

```

```

Approximate solution P = 0.73908513
Number of iterations = 53
Tolerance = 1.000e-10 |p-pold| = 9.387e-11

```

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