
```
function fixedPointIterationD()
% Use the following fixed-point iteration method to compute  $21^{1/3}$ 
%  $p_n = (21/p_{n-1})^{1/2}$ 

% how many iterations it takes to compute  $21^{1/3}$  using this method
how_many_iterations = 0;

% pn-1
p_last = 0;

% pn
p_current = 1;

% tolerance
TOL = 10-10;

% Until the error range is less than tolerance,
% we continue to apply this fixed-point iteration method.
while abs(p_current - p_last) >= TOL

    % set pn-1 to the last value of pn
    p_last = p_current;

    % calculate pn using the fixed-point iteration method
    p_current = (21/p_last)1/2;

    % increment how_many_iterations
    how_many_iterations = how_many_iterations + 1;
end

% print the results
fprintf("n: %d\t", how_many_iterations);
fprintf("p%d: %.10f\t", how_many_iterations, p_current);
fprintf("|error|: %.10f\n", TOL);

end

n: 37 p37: 2.7589241764 |error|: 0.0000000001
```

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