```matlab
%implement f(x): fn is the copy of f that is used to compute f^i(x)
syms x f fn
a = 2*x;
b = 2*x-1;
f = piecewise((0<=x)&(x<=0.5), a, (0.5<x)&(x<=1), b);
%plot of f(x)
fplot(f,[0,1]);

%declare x_0 and init arrays to store the computed values
x_0 = 0.6;
fVals = zeros(1,100);
iVals = zeros(1,100);

%compute f^i(x_0)
fn = f;
for i = 1:100
    % find f^i(x_0)
    val = subs(fn,x,x_0);
    val = round(val,12);
    %store found value
    fVals(i) = val;
    iVals(i) = i;
    %display f(x_0), f^2(x_0), f^3(x_0) and f^100(x_0)
     if (i == 1 || i == 2 || i == 3 || i == 100)
         disp([i val]);
     end
    %compute f^i+1(x) = f(f^i(x))
    fn = subs(f,x,val);
end

%plot sequence
scatter(iVals,fVals, 20, 'black','filled');
hold on
grid on
xlabel('i');
ylabel('f^i(x_0)')
title('x_0 = 0.6');%change to reflect x_0
```
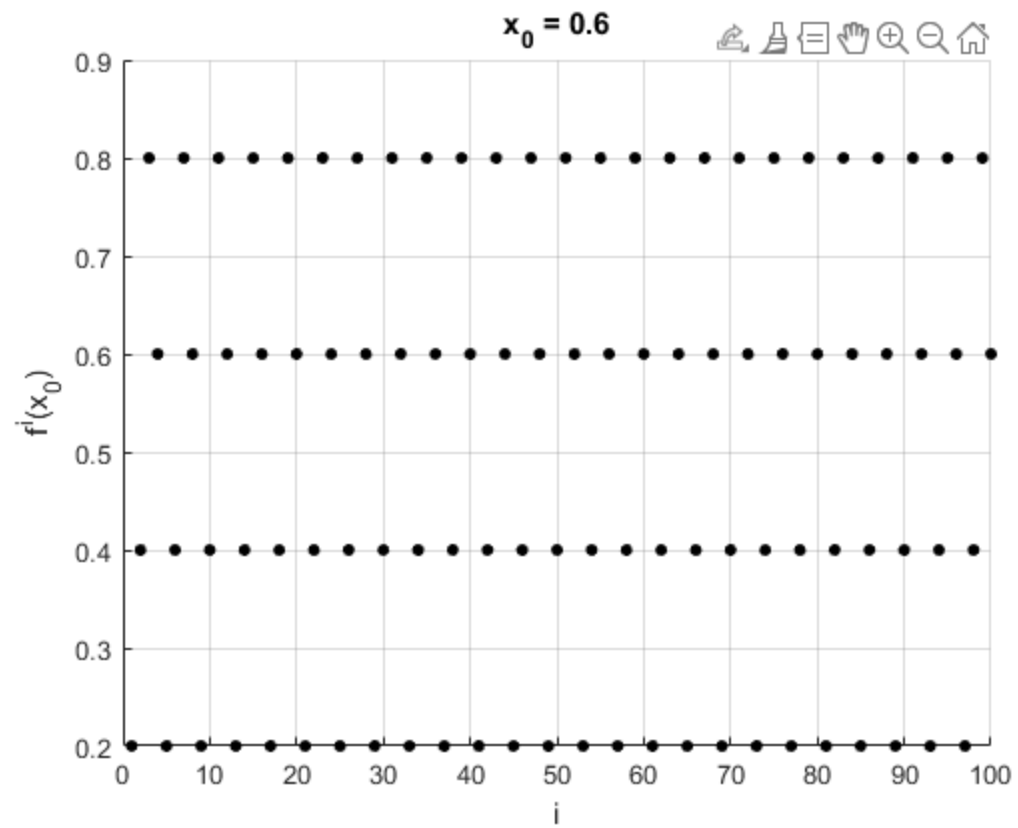
[1, 0.2]

[2, 0.4]

[3, 0.8]

[100, 0.6]

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