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% MACM 316 - Homework 1
% Floating Point Arithmetic
% Description: Performs n-fold square-rooting following by squaring of
% the number x
% File name: FloatPt.m

clear
format long
n=34;
st=0.001; % Define a stepsize
x=0:st:5; % x is a row vector of numbers between 0 and 1 of increments st
y=x;

for i=1:n
    y=nthroot(y,2);

end

for i=1:n
    y=y.^2; % The '.' here means the squaring is carried out on each element of y
end

% Plot the output y versus the input x
plot(x,y)
title(['Output of the Computation with n = ' num2str(n)], 'fontsize',14)
xlabel(['Input x'], 'fontsize',12)
ylabel(['Output y'], 'fontsize',12)
```