Reference Solution to "Bessel Function Zeros"

```
num_roots=5; num_functions=6;
%initial guess for roots (from Wolfram MathWorld)
bzeros_guess=[2.4,3.8,5.1,6,7.5,8.7;...
  5.5,7,8.4,9.7,11,12;...
  8.6 10,11.6,13,14,16;...
  11.8,13,15,16,18,19;...
  15,16.4,18,19.4,21,22];
integrand = @(theta,x,n) cos(x.*sin(theta)-n*theta);
J_n = @(x) integral(@(theta)integrand(theta,x,n),0,pi);
for n=0:num_functions-1
   J_n = @(x) integral(@(theta)integrand(theta,x,n),0,pi);
   for k=1:num_roots
     bzeros(k,n+1)=fzero(J_n,bzeros_guess(k,n+1));
   end
end
%print table
fprintf('k    J0(x)    J1(x)    J2(x)    J3(x)    J4(x)    J5(x)\n')
for k=1:num_roots
  fprintf('%i',k)
  for n=0:num_functions-1
    fprintf('%10.4f',bzeros(k,n+1));
  end
  fprintf('\n');
end
```

Completed **Go to next item**

Like **Dislike** **Report an issue**