```
function z0 = FindInitialZGuessForLambert( yf, Ff )

% Find an initial guess for "z" to solve Universal Keplers equation.
% For use in the Lambert method.
%
% This method finds all zero-crossings for y(z), and looks for z-
values in
% the ranges where y(z)>0 where F(z) is near zero.
%
%
%   Inputs:
%     yf      Function handle for y(z).
%     Ff      Function handle for F(z)
%
%   Outputs:
%     z0      Array of initial guesses to consider.

zmin = -1e3;
zmax = 1e3;

% first find any y(z)=0 crossings, if they exists
zz = linspace(zmin,zmax,1e4);
yz = yf(zz);
y1 = yz(1:end-1);
y2 = yz(2:end);
kyz = find(sign(y1).*sign(y2)<0);

if( isempty(kyz) )
  %disp('No y(z)=0 crossing found...')
  zz = linspace(zmin,zmax,1e4);
  z0 = FindApproxFZero( Ff, zz );

else
  %disp(sprintf('%d y(z)=0 crossings found...',length(kyz)))
  z0 = [];
  for i=1:length(kyz)

    zy0 = fzero(yf,zz(kyz(i)));
    zz = linspace(zy0,zy0+zmax,1e4);
    z0i = FindApproxFZero( Ff, zz );
    if( ~isempty(z0i) )
      z0 = [z0, z0i];
    end

  end
end

%disp(z0)

function z0 = FindApproxFZero( Ff, zz )

  f = Ff(zz);                 % F(z) where y(z) > 0
```

```
% find approx. F(z)=0 crossing
f1 = f(1:end-1);
f2 = f(2:end);
ks = find(sign(f1).*sign(f2)<0);
z0 = zz(ks);
```

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