```
function error = freqEq1(omega)

% This function returns the error in the equation
% satisfied by the frequencies of a string with one end
% flexibly attached.  The scaled attachment flexibility k
% is assumed to be 1.
%
% Input:
%    omega: the frequency to test
% Output:
%    error: zero if omega is a correct frequency (tone)
%           of the string, nonzero if it is not.
%
% Advanced analysis taught in Analysis in Mechanical
% Engineering II shows that the equation the frequencies
% must satisfy is:
%                - k omega = tan(omega)
% So if the frequency is not right, the error in the
% equation (difference between the right and left hand
% sides) is:
%              error = tan(omega) + k omega

% Note that omega is in radians and do not forget the semi-colon
error = tan(omega) + omega;

end
```