

# DSP: HW 2

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## 1. riemann.m

```
%computes left-side Riemann sum of a function defined within given
%interval endpoints [a,b] and number of subintervals (n)...
%by Andrew Householder

function area = riemann(a, b, n)
function y = f(x)
y = x^1;
endfunction

dx = (b-a)/n;
sum = 0.0;
for t = 0:(n-1)
sum = sum + f(a + (t*dx));
endfor
area = dx*sum;
endfunction
```

## 2. rlc.m

```
R = 50;
C = 470e-12;
L = 54e-6;

f = [0.0:.01:2];
f_mega = f.*10^6;
omega = f_mega.*2*pi;
omegaLC = 1/sqrt(L*C);
tau = R*C;

function r_val = h(omega, omegaLC, tau)
K = sqrt(1-(omega./omegaLC).^2);
d = (K.^4+(omega*tau).^2);
X = K.^4./d;
```

```

Y = -1*(K.^2.*omega*tau)./d;

r_val = X + i*Y;

endfunction

plot(f,abs(h(omega, omegaLC, tau)), 'linewidth',5, 'color','green')
set(gca(), 'fontsize', 30)
xlabel('Frequency (mHz)')
ylabel('Amplitude')
title('RLC Circuit')
axis([0 2 0 1.2])

```