Contents

```matlab
% 2a
samp = 512;
beta = [0 2 4 6 8 10];
figure;
hold on;
for i = 1:length(beta)

    w = kaiser(N,beta(i));

    plot(0:N-1,w,'DisplayName', sprintf('\\beta = %g', beta(i)));
end

legend('show','Location','best');
title('Kaiser Windows')
hold off;
```

```
Unrecognized function or variable 'N'.

Error in hmw4q2 (line 8)
    w = kaiser(N,beta(i));
                ^
```

2b , 2c

```matlab
samp = 512;
beta = [0 2 4 6 8 10];

NFFT = 16*1024; %fft sample size


figure;
hold on;

for i = 1:length(beta)
    w = kaiser(samp, beta(i));
    w_fft = fft(w,NFFT);
    f = linspace(0,1,NFFT);
    w_fft_dB = 20 * log10(abs(w_fft)+0.000000001); %doesn't like log10(0)
    plot(f(f <= 0.01),w_fft_dB(f <= 0.01),'DisplayName', ['\beta = ', num2str(beta(i))]);

    fprintf('For beta = %.0f\n',beta(i)); %2c segment
    fprintf('W(0) = %.4f\n', abs(w_fft(1)));
    fprintf('Window function sum = %.4f\n',sum(w)); % sum of w[n]
    fprintf('\n');
end

hold off;
```

```matlab
xlabel('f');
ylabel('dB');
title('Kaiser Window DTFT');
legend('show','Location','best');

%ylim([-100,60]);
```

2d

```matlab
%i - Width increases for increasing beta.

%ii - Height decreases for increasing beta.
```