Sample mistakes from old computer assignments.

I. General Comments

1. Not providing introduction and conclusions. I left the format open, but in class I did say that there should be some form of an introduction and conclusions. The introduction should briefly explain the process and objectives of the different parts of the assignment. The conclusions should make statements about what you did and what you learned.
2. Every figure should have a caption with a figure number and short (1-2 lines) description. In addition, every figure should be referenced and discussed in the text of the document. Figures should appear on the page they are referenced or as soon *after* as possible.
3. Mathematical variables are usually italicized in technical documents. It is also easy to use subscripts. Do not write coefficients as Ak and Bk, write them as a_k and b_k.
4. Number significant equations for later reference. You can insert a "Right Tab" at the right margin of your text. Then, you can tab to that location and put the equation number in parentheses. An example is

$$y(n) = x^2(n). \qquad (1)$$

   You may also note that the equation is inserted as if it were part of a full sentence, complete with punctuation at the end. When you reference this equation, just say something like…"In (1), we see that…". If the equation number is starting a sentence, then you would write… "Equation (1) shows that…".
5. The word figure should be capitalized when used in reference to a specific figure, such as in referring to Figure 1 below.
6. Do not scan figures or equations, and do not use printscreen unless absolutely necessary. Whenever possible use original graphics files in jpeg, eps, or other format.
7. Do not interpret figures to represent something you know should be true but isn't actually supported.
8. Use first person as little as possible. When first person is used, use plural even if you are the only person doing the project.
9. Define all variables the first time they are introduced.

II. Examples of Poor Figures

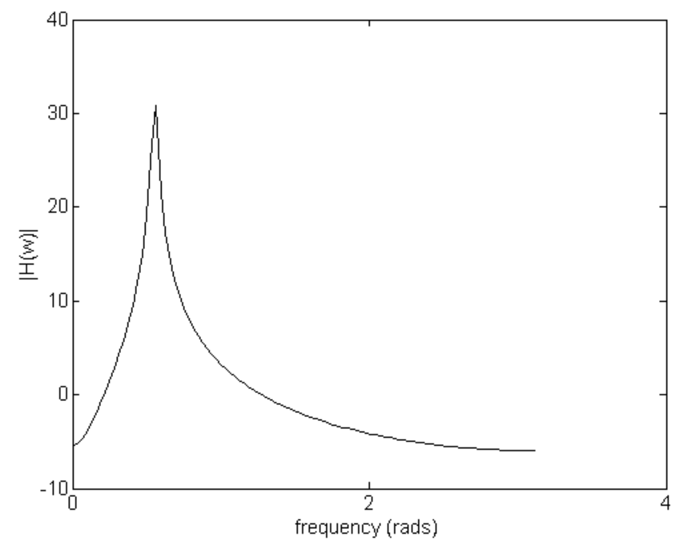

Figure 1.

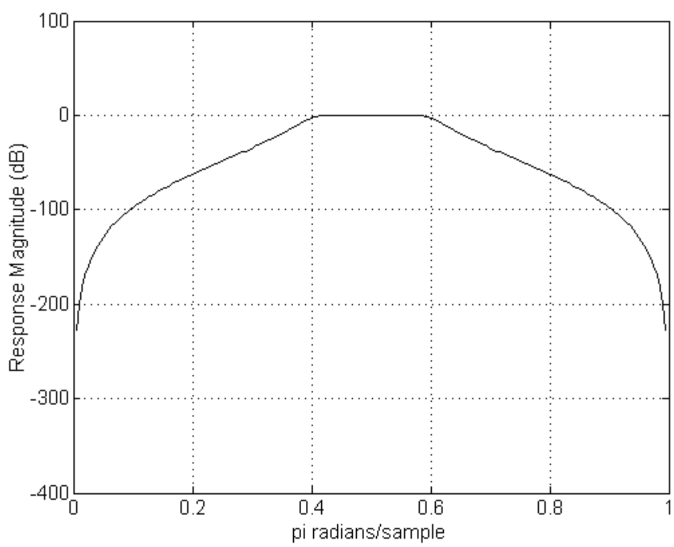

Figure 2.

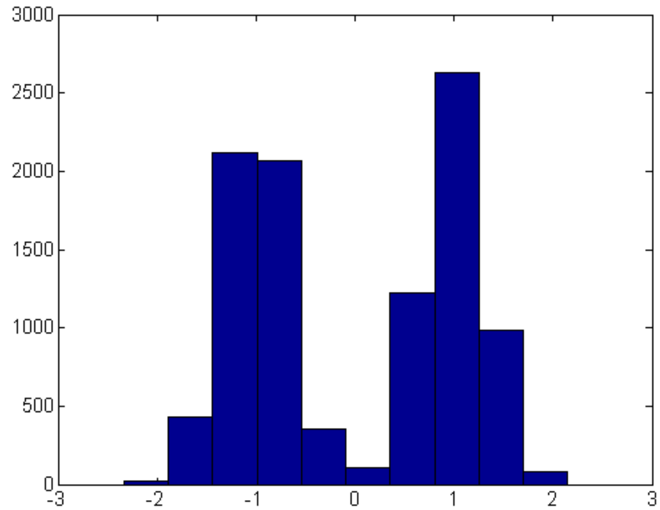

Figure 3.

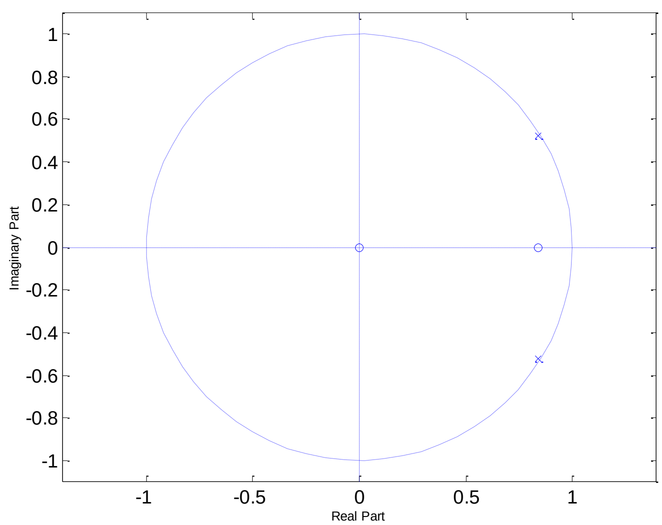

Figure 4.

Note the text that was associated with the pole zero plot in a couple of cases: "…with red crosses marking the poles and blue circles marking the zeros…"

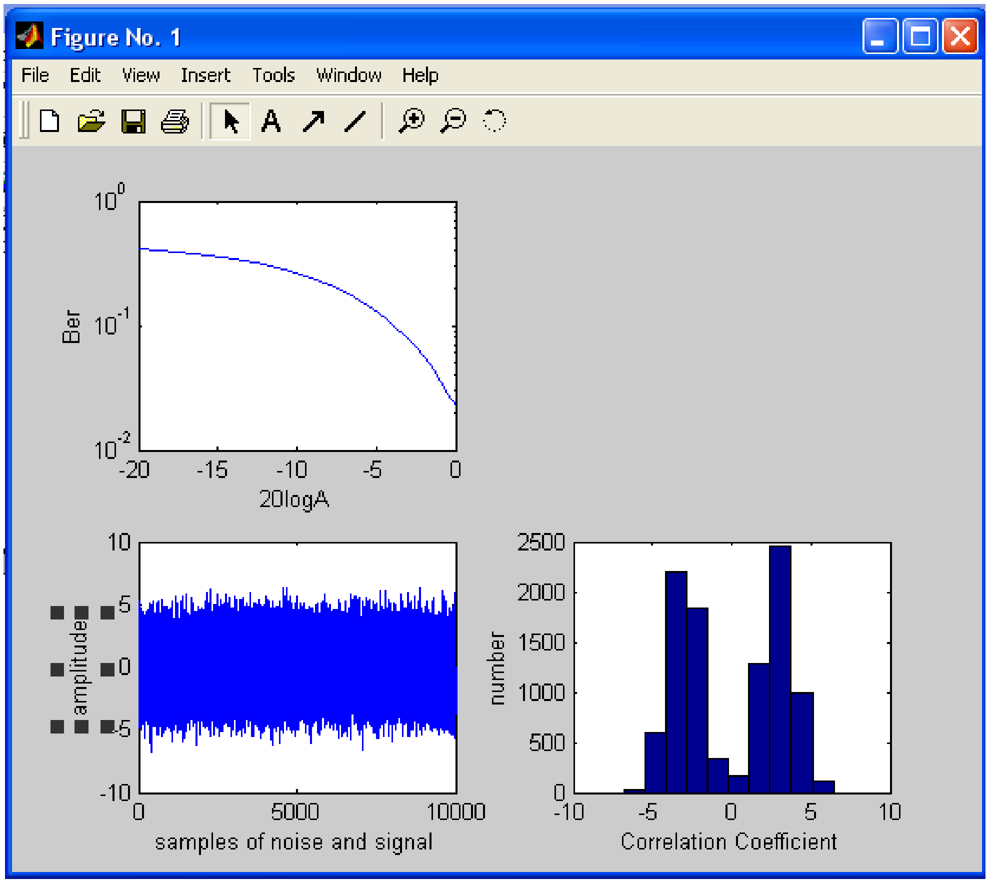

Figure 5.

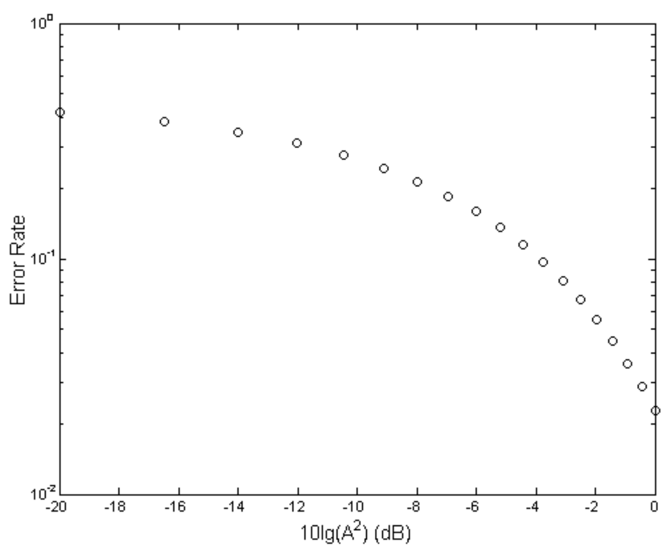

Figure 6.

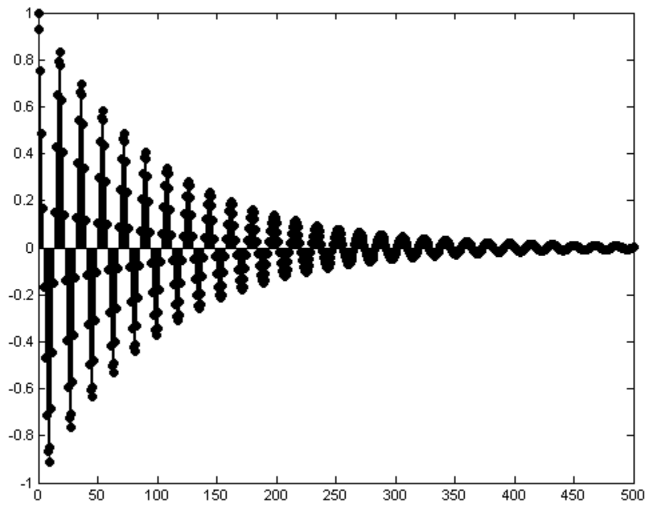

Figure 7.

III. Examples of Poor Sentences

"The zeros tend to bring the response of the filter back to zero and the poles tend to send the response to one."

"Here the poles are slightly more inside the unit circle than before, and their effects on the frequency response are visibly diminished."

"The effect is even more pronounced as the frequency of modulation is increased as here, for k=100 and Pn=20."

"We can see form the figures, the average error rate of N=100 is smaller the it of N=10."

"At ω=0, there is a zero near this frequency and this suppresses the frequency response. This is because the numerator in the transfer function gets close to 0 at this frequency. That is why we have a low magnitude at ω=0."

"The presence of a zero changes the relative frequency of the impulse response. Since the zero is farther away from the origin, the impulse response has a lesser frequency."

"The system is IIR as there are poles and there are no zeros to cancel the poles
the system s stable as the poles are inside the unit circle"

"When zeros are on the unit circle, the bottom of the frequency response magnitude will be zero."

"Finally, let's try for different Ns with A = 0.1."

“The real values of the zeros and poles are once again the same.”

“The bandpass of this system is wider, the 1b because the poles have been moved close to the center of the unit circle.”

“The purpose of this exercise is to analyze how resistant the usage for correlate for a form of encoding known as Binary phase-shift keying (BPSK) is.”

“From f and g, it is seen that when the zeros are in up and down corners of unit circle, the system acts as a band pass filter whereas if it is to the right corner of unit circle, it acts as a high pass filter.”

“As shown in the plot above, since the poles are inside the unit circle, therefore, the system is stable.”

“First, our group determined that the coefficients do not change even though you change domains from n to z.”

“Using two values s0 and s1, A*cos(2*pi*fo*n) and –A*cos(2*pi*fo*n) where A is varied from 0.1 to 1.0 and n is varied from 0 to 9 for a total of 10 samples, to be conjugates of each other, the student must then place s0 into the rs function where the value of rs is 1 and s1 into the matrix where the value of rs is 0.”

“Therefore, we should know that the relationships between these two analysis tools.”

“Thus we can find poles and zeros by using Matlab like bk=[1,-0.8415,0]; c=roots(bk); ak=[1,-1.683,0.9801]; d=roots(ak);.

“If a system had poles safely inside the unit circle, i.e. not near the edge, the system would become stable rather fast.”

“Setting $z= e^{j\omega}$, where ω is the frequency in radians, and is also the angle between the positive real axis and a point on the unit circle the frequency response can be measured.”

“This results in the peaks spreading out in the magnitude response, and the oscillations in the impulse response to have a faster frequency.”

“Because the poles which are spread out, this will translate into a wider pass band filter then if the poles were located at one spot.”

“Next we got:”

“When the 2 sequences produce negative numbers when multiplied in the majority of samples (the stem plots ‘mirror’ each other), then when we add the products we get a negative number.”

"We see that the worst error rate is 50% and the lowest is 0%, which can change if I run the program again, since the noise is randomly added."

"The first set of aks and bks given produce the pole zero digram shown here:"

"Each peak represents an area where correlation values fell that was easily identifiable as to the bits value."

IV. Miscellaneous

$$h(n) = \left[(0.9)^n \cdot \cos(31.7° n) \right] u(n)$$

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