1. You are given the following 5 facts about a real signal *h(t)* with Laplace Transform *H(s)*.
2. *H(s)* has exactly 3 poles.
3. *H(s)* has no zeros.
4. *H(s)* has a pole at –2 + j and a pole at –1.
5. is not absolutely integrable
6. *H(0)* = 20.
7. Determine *H(s)* and specify its ROC.
8. Is the system described by *h(t)* stable? What is your reasoning?
9. Is the system described by *h(t)* causal? What is your reasoning?
10. A system with input *x(t)* and output *y(t)* is described by the differential equation

*y’(t)+2y(t) = x(t), y(0-)=1*

Let .

1. Find the zero input response in the time domain.
2. Find the zero state response in the time domain.
3. Find the total response, *y(t)*
4. Consider the following differential equation:  with  and . Solve for *y(t).*

(4) (a) Find the inverse Laplace transform of 

(b) Is this a causal system? Why or why not?

(c) Is this a stable system? Why or why not?