Homework 5: due 02/23/18EE 324: Signals and Systems II

Laplace transform 1

- 1. $x(t) = (t-1)^2 \cos(\frac{\pi}{3}(t-1))u(t-1)$
- 2. $x(t) = (t-1)^2 \cos(\frac{\pi}{3}(t-1))u(t)$

$\mathbf{2}$ Zeros, poles and stabilities

Calculate the zeros and poles of the following transfer functions and determine their stabilities

1.
$$H(s) = \frac{s+1}{s^2+5s+4}$$

2. $H(s) = \frac{s^2+6s+9}{s^2+2s+5}$
3. $H(s) = \frac{s^2-s+12}{s^3+2s^2-s+2}$

Inverse Laplace transform 3

- 1. $\frac{s+2}{s^2+2s+1}$ 2. $\frac{s^2+1}{s^3+3s^2+3s+1}$ 3. $\frac{s^2-1}{s^2+2s+1}$ 4. $\frac{s^2+7s+7}{s^3+5s^2+7s+3}$ 5. $\frac{2s^2+5s+7}{s^3+4s^2+9s+10}$