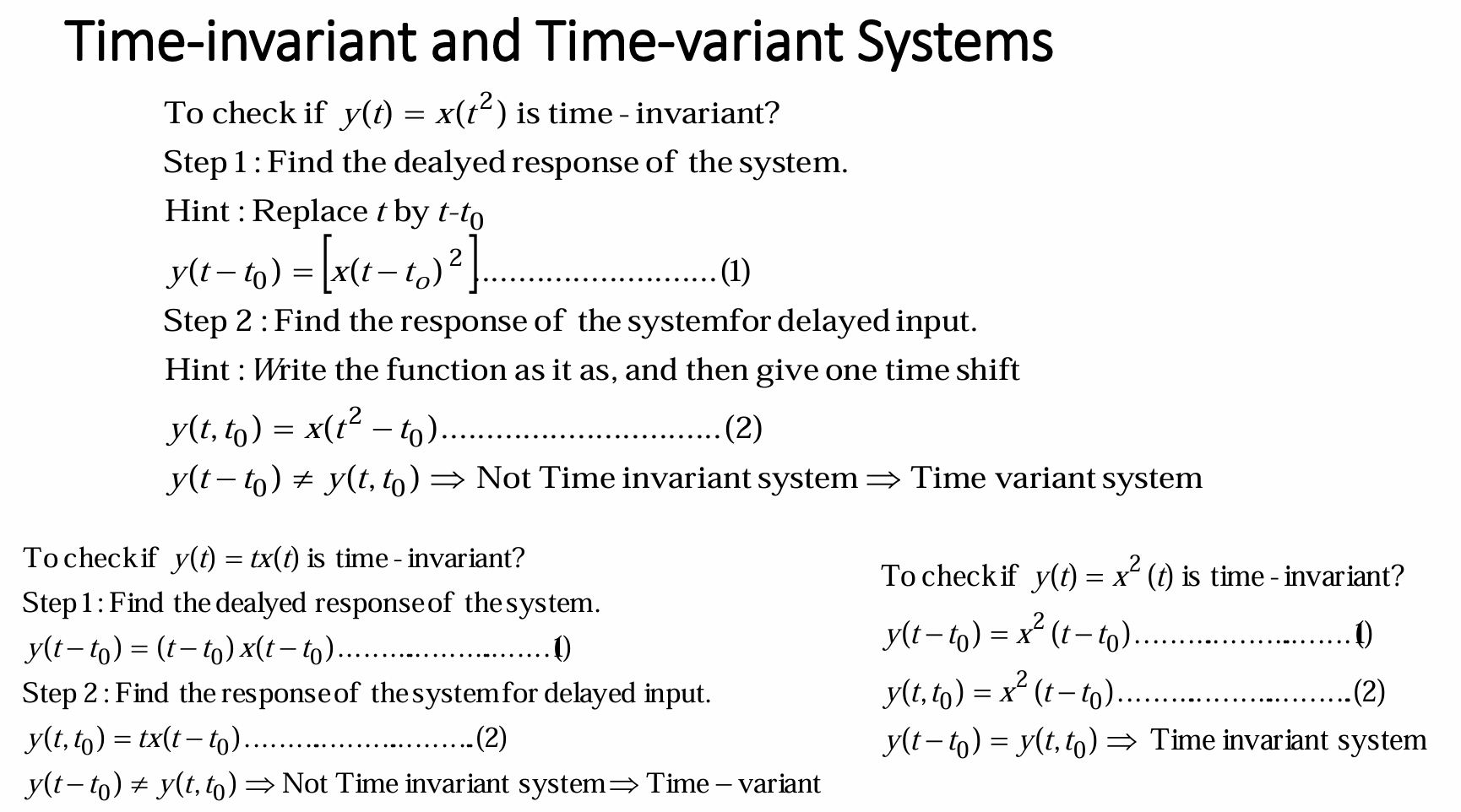
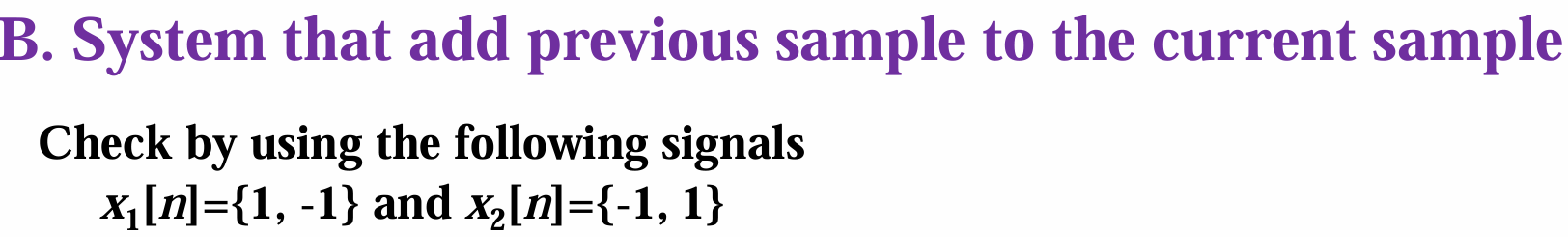
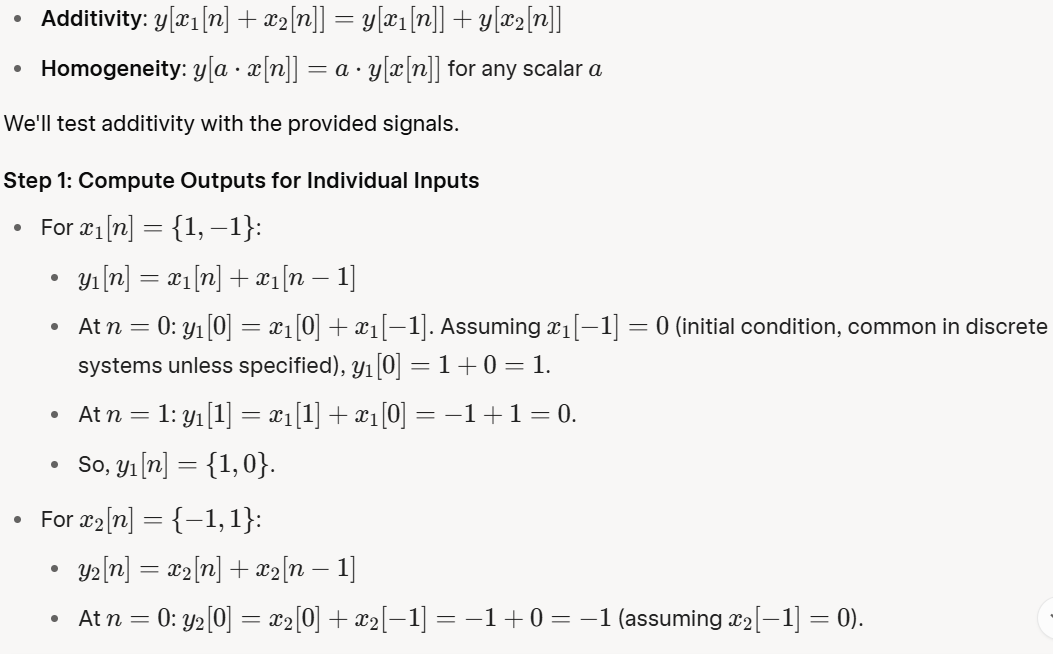
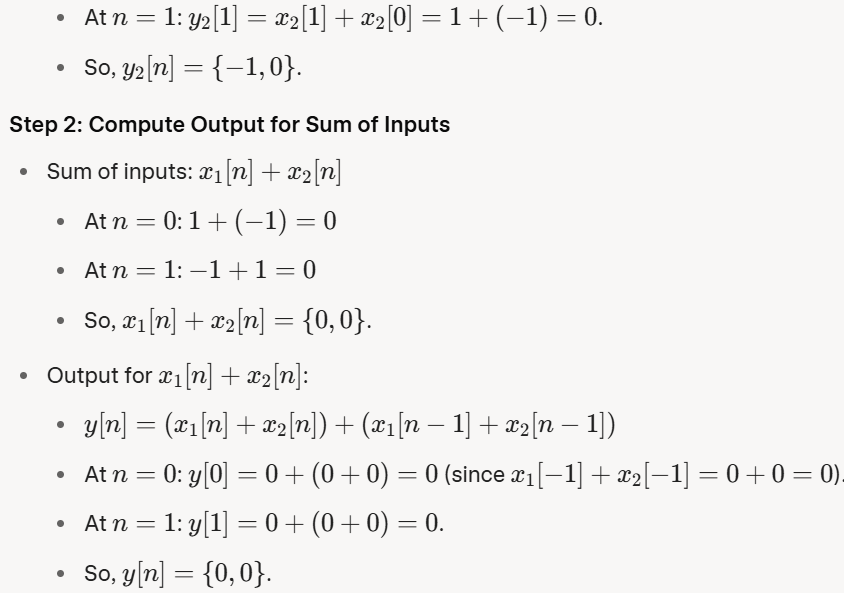
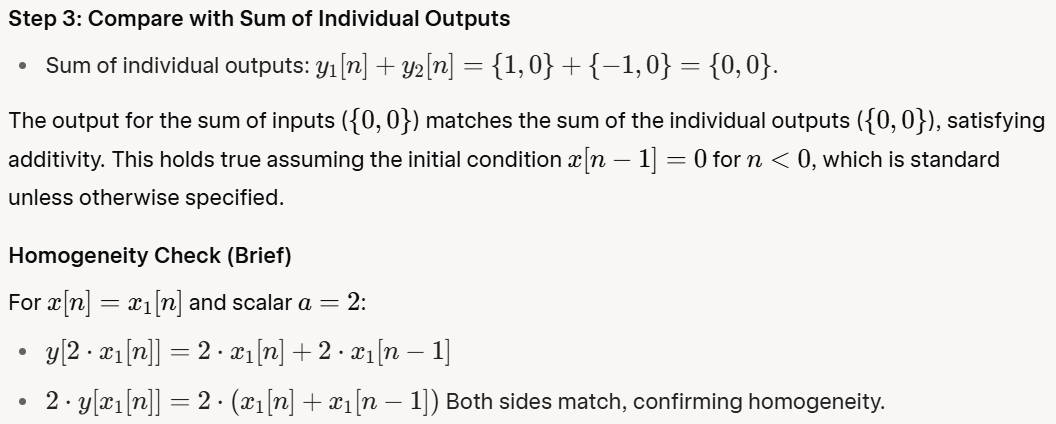
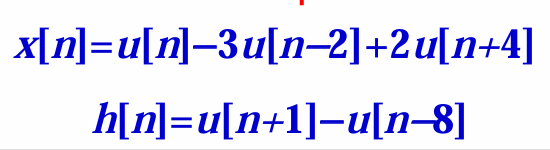
3rd Sem: Lecture 5 slide 7: SnS











* u[n]*u*[*n*]: 1 for n≥0*n*≥0, 0 otherwise.
* −3u[n−2]−3*u*[*n*−2]: −3−3 for n≥2*n*≥2, 0 otherwise.
* +2u[n+4]+2*u*[*n*+4]: +2+2 for n≥−4*n*≥−4, 0 otherwise.

Let's find x[n]*x*[*n*] piecewise:

For n<−4*n*<−4: all terms 0 → x[n]=0*x*[*n*]=0.

For n=−4,−3,−2,−1*n*=−4,−3,−2,−1:

* u[n]=0*u*[*n*]=0, u[n−2]=0*u*[*n*−2]=0, u[n+4]=1*u*[*n*+4]=1 (since n+4≥0*n*+4≥0)
* So x[n]=0−0+2(1)=2*x*[*n*]=0−0+2(1)=2.

For n=0,1*n*=0,1:

* u[n]=1*u*[*n*]=1, u[n−2]=0*u*[*n*−2]=0 (since n<2*n*<2), u[n+4]=1*u*[*n*+4]=1
* So x[n]=1−0+2=3*x*[*n*]=1−0+2=3.

For n≥2*n*≥2:

* u[n]=1*u*[*n*]=1, u[n−2]=1*u*[*n*−2]=1, u[n+4]=1*u*[*n*+4]=1
* So x[n]=1−3(1)+2(1)=0*x*[*n*]=1−3(1)+2(1)=0.

So:

x[n]={0,n<−42,n=−4,−3,−2,−13,n=0,10,n≥2*x*[*n*]=⎩⎨⎧​0,2,3,0,​*n*<−4*n*=−4,−3,−2,−1*n*=0,1*n*≥2​

Or in sequence form (index n*n* from -4 to 1):

x[n]={2,2,2,2,3,3}for n=−4,−3,−2,−1,0,1*x*[*n*]={2,2,2,2,3,3}for *n*=−4,−3,−2,−1,0,1

Zero elsewhere.