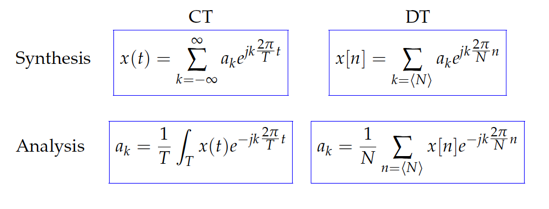
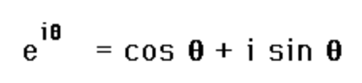
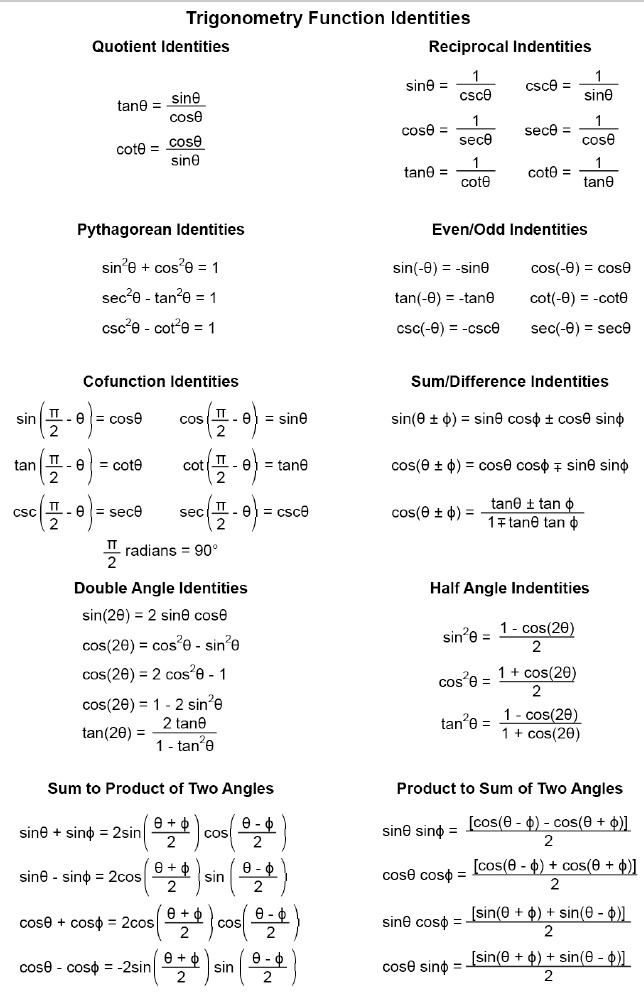


/Users/Gera/Desktop/Screen Shot 2016-10-24 at 10.25.52 PM.png





Causality: outputs only depend on past and current inputs. h(t) = 0 for t < 0

BIBO:

Linearity: ax­1 + bx2 -> ay1 + by2

T.I.: x(t-to) -> y(t-to)

Properties of Convolution:

*f*1(*t*) \* (*f*2(*t*) \* *f*3(*t*)) = (*f*1(*t*) \* *f*2(*t*)) \* *f*3(*t*)

y(t) = f(t) \* h(t) = h(t) \* f(t)

*f*1(*t*) \* (*f*2(*t*) + *f*3(*t*))=*f*1(*t*) \* *f*2(*t*) + *f*1(*t*) \* *f*3(*t*)

For *c*(*t*) = *f*(*t*) \* *h*(*t*)

Then *c*(*t*−*T*) = *f*(*t*−*T*) \* *h*(*t*) = *f*(*t*) \* *h*(*t*−*T*)

*f*(*t*) \* *δ*(*t*) = *f*(*t*)

In continuous time, if Duration(*f*1)=*T*1 and Duration(*f*2)=*T*2 , then

Duration(*f*1\**f*2)=*T*1+*T*2

In discrete time, if Duration(*f*1)=*N*1 and Duration(*f*2)=*N*2 , then

Duration(*f*1\**f*2)=*N*1+*N*2−1

If *f* and *h* are both causal, then *f* \* *h* is also causal.