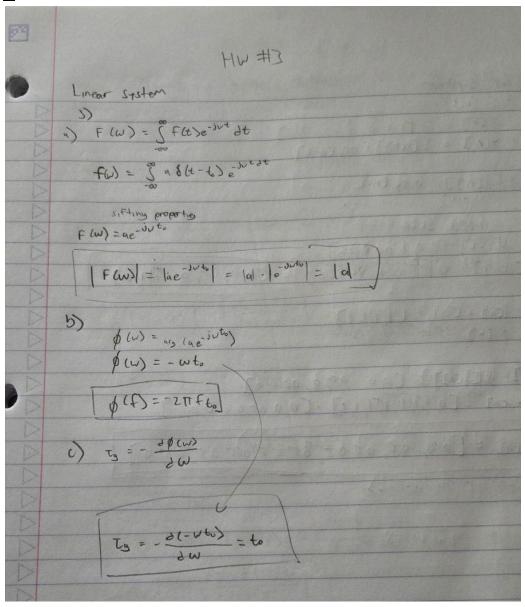
Linear Systems

<u>1.</u>

```
Homework #3
 Linear systems
1) a) A{xEn]} = A{B {x(n)}} = B{A{xEn]}}
     [ [ ] = (x(x)) = 0. 5x [n] = 0. 5x [n]
linear if A(c.xC)=c.A(xC)}
     A{(c.x(n)) = 2((c.x(n))-1=2(.x(n)-1)
     (. A(x [n]) = c. (2x [n]-1) = 2c. x [n] - C
system A not linear Brails scaling proporty homogenty
     B(C.XCN])= 0.5(C.XCN])= 0.5C.XCN] = C. (0.5xCN]) = C.B {XCN]}
 System B Ineur
b) remove the constant for system A
     [n]x5= (cn3x)A
    A ( (x[n] ) = B ( A (x[n] )
A ( 3 ( x ( n ] ) )
 = A {0.5 x [n]} = 2(0.5 x [n]) = x [n]
B{A{XEA]})
= B { 2 x[n]} = 015 (2x[n]) = x[n]
```

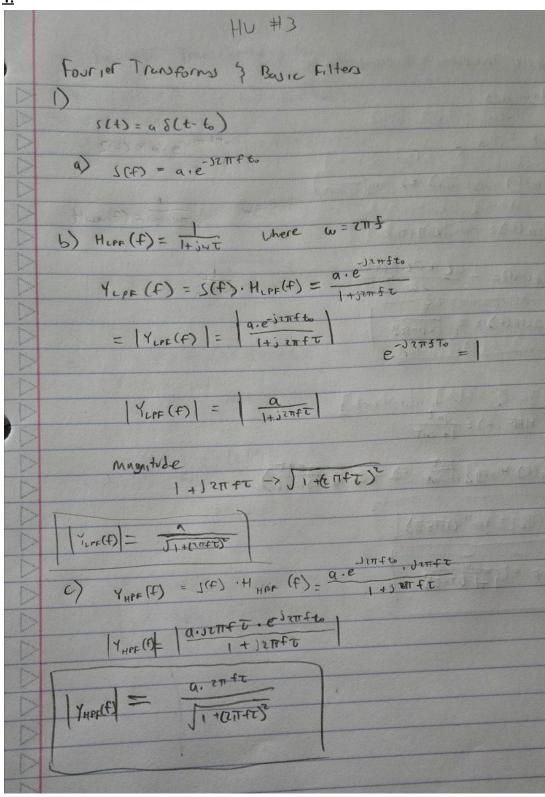
200	A STATE OF THE PARTY OF THE PAR
barrel.	
	E#WH
	linear Systems
D	
D	$\frac{1}{2} f(t) = a_1 \cos (2\pi f_1 t) + a_2 \cos (2\pi f_2 t)$
N	11-14, ti=zf, (f(t) 8/4-7/26
5	12 = 1/42
	· 5° f(t) 5(t-72) 2t
D	$\int_{-\infty}^{\infty} a_{i}(\cos(i\pi f_{i}t) + a_{i}\cos(i\pi f_{i}t)) \delta(t-\overline{t}_{i}) dt$
0	-00
D	The state of the s
5	
5	= a, cos(211 f, T) + az eos(211 fz.T) = a, cos(217 fz.T)+az(211 fz.T)
	= a, cos (2TT) + az cos (2TT .Z) = a, 1+az 1 = a, +az
	०) योगासर्ग विष्म
> ~	
5	00
-	S dicos (27) f, t + 92005 271 fit) & (+-T2) 24
-	-00
>	a, cos(27 fitz)+92 (05 (27) fz Tz) = 42 cos(27) fi 25)+9200 (27)
-	- 45 (S) +05 (S) +05 (S)
	= a, cos(TT) + a2 cos (2TT) = -9, +92



Hw #3
Linear System
4) S[n] U [1,0,0,0,0,0,0] Y[n] = S[x(n]] = 05, [n-2]
a) s [d[n]] = 0.5x [n-2
$\frac{\delta[n-2] = [0,0,1,00000]}{\delta[n-2] = [0,0,1,00000]} = [0,0,05,0,000]$
b) 7,[n] (1,1,1,1,1)
h[n] = S[8[n]] = [0,0,0,5,0,00,0,0] - Js[n] = [0,1,1,1,1,1,1,1]. [0,0,0.5,0,0,0,0,0]
[75CM] = [0,0,0.5,0.5,0.5,0.5,0.5,0.5,0.5,0.5]

Fourier Transforms & Basic Filters

<u>1.</u>



<u> </u>	
	Fourier Transforms & Basic Filter
	1) Low pus
D	U = 7 A
N	HUF = 1+int
	$p_{eff}(f) = arg(\frac{1}{1+arg}) => arg(\frac{1}{1+ienft})$
D	7 (1+nellan)
1	d ·
D	PLPF(F)=-tun-'(2717+E)
0	
1	Tg.(8F(F)= - d(-ten-(2TFT))
The same of the sa	Tolef(f) = - d(-tur (21150))
0	
0	Taux(x) = T
1	(+(im3t))
2	
	High Pass
	HRF (+) = Jut 1+ sut
	17 300
	d (0) - Jut - 1 277 ft,
	(PHILE (4) = and 1+ 1mo =) and (1+3271 ft)
>	
> T.	40x(f)= du (1/2 - tan' (2017 f T))
1 9	111-1 30- (12) van (cir+c)
	-
183333	Ty LPF = 1+ (inft)
	1 + (1115)
1000	
STATE OF THE PARTY	

Fourse Transforms & busic filters

3)
$$S(t) = \frac{\pi}{2} (6(t-t_0) + 8(t+t_0))$$

4) $S(t) = \frac{\pi}{2} (6(t-t_0) + 8(t+t_0))e^{interst}$

$$S(t) = \frac{\pi}{2} (6int_0 + e^{-int_0t_0}) = 2is (till to t)$$

$$= \frac{\pi}{2} (6(t-t_0) - 8(t+t_0))$$

$$S(t) = \frac{\pi}{2} (6(t-t_0) - 8(t+t_0))e^{-int_0t_0}$$

$$S(t) = \frac{\pi}{2} (6(t-t_0) - 8(t+t_0))e^{-int_0t_0}$$

$$S(t) = \frac{\pi}{2} (6(t+t_0) - 8(t+t_0))e^{-int_0t_0}$$

Convolution & Octave Code

<u>1.</u>

