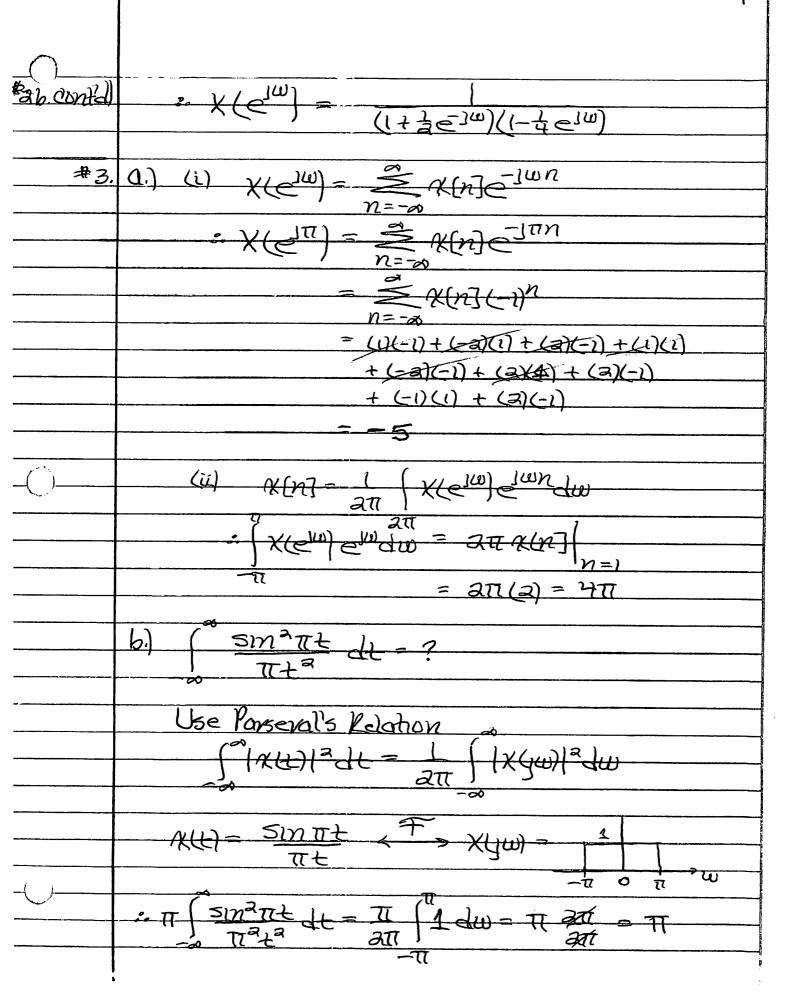
$\bigcirc$	ELEG 305
	SOLUTIONS TO EXAM #a (4/18/17)
#1.	(2/1) $=$ $(1/1)$ $=$ $(5/7)$
#1.	X(t)= 5in 节t + cas \$ \$ 年
	a) The fundamental penal, T, is the time
	interval over which alt repeats, i.e.
W. Washington and the control of the	$\chi(t) = \chi(t+T)$
F Supplement the continue to t	or, we can determine the fundamental
** ** ********************************	radian frequency Wo, and T= 211/Wo
	In this case, it is clear that wo = T/4, and
	$T = 2\pi - 8$
	$w_{\circ}$
* **	1-) (V(1) - 5) (201) 2 (00 7501)
. (	b.) (x(t) = 51n w,t+ cos 5w,t
	The Founer Senes operflorents for this signal
PMPARenus and Authority control relative transport and community	The Founer Senes opefficients for this signal con easily be found by inspection.
√	$X(t) = \int_{1}^{\infty} \int_{1}^{\infty} e^{jkw_{0}t}$
	ai e ai e
	+ 1 9 3 至 + 1 3 至 + 1
<del></del>	a
	$Q_{i} = \frac{1}{2i}$
** Trominated trouses remeasurable greaters	$Q_{-1} = -\frac{1}{2}$ $W = T$
	Q5 = 3 4
Control of the Contro	0-5-2 支
-()	and all other Q=0
***************************************	
	The state of the s

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# (aprila)	a) by = Former Somes operficients of y(1)
	= a H(jkw)
	than T. So. a. and an will be zeroed -
·	The filter outs of mything with frequency lower than T. So, a, and a., will be zeroed - the sin #+ term will not pass through
	the filter.
	b= aH(; 5]
	$= \frac{1}{3} \left( \frac{5\pi}{4} - \frac{\pi}{3} \right) = \frac{1}{3} \left( \frac{3\pi}{4} \right) = \frac{3\pi}{3}$
	1 (2) (1) (577)
•	b-5= Q-5H(-) == )
()	$=\frac{1}{2}(511-11)-311$
	all other by's are zero.
	d) y(t) = \$\frac{1}{2}b_k e^{1k\frac{1}{4}t}\$ = \frac{3\pi}{3\pi} = \frac{1}{2\pi}\frac{1}{4}t
	3TT 15TT - 15TT -
	804180
	- 311 cos 511 L
#3	Q) 1812) - QX(1- 2-) 1 20X(1-) + X(1) + X(1)
	al yet = BRCL- ALD + SPRCE)* RUD * RUD
	+ S(t+at) + 13xH)/dt3
	R3(L) R4(L)
	$\mathcal{Z} \left[ \begin{array}{cccccccccccccccccccccccccccccccccccc$
	T(yw)= X(yw) + Xz(yw) + Xz(yw) + Xz(yw)

म्वव.contil)	X, (jw) = BX(jw) e Juto
	Xzyw) = zp X3yw)
	X3(jw) = ejwato
	X4 Gw) = Gw) XGw)
	Xyw= facto = jut the jut the are
	$= \int_{\infty}^{\infty} -(\alpha + j\omega)t dt = 1$
	: Y(jw) = & = ajwto - (jw) = & = ((a+jw)) <sup>3</sup> + e (u+jw) - (yw) <sup>3</sup> - (a+jw)
	+ (Jm) <sup>2</sup> - (Jm) <sup>2</sup>
	b) $\alpha[n] = (-\frac{1}{2})^n u(n) * (\frac{1}{4})^n u(n)$
	$\frac{\mathcal{R}[n]}{\mathcal{R}[n]}$
	$\chi(e^{j\omega}) = \chi_i(e^{j\omega})\chi_s(e^{j\omega})$
	$X_{1}(e^{j\omega}) = f\left(-\frac{1}{2}n_{\omega}(n)\right)$ $= \frac{2}{n_{-0}}\left(-\frac{1}{2}n_{-1}^{-1}\omega n - \frac{1}{1+\frac{1}{2}}e^{j\omega}\right)$ $= \frac{2}{n_{-0}}\left(-\frac{1}{2}n_{\omega}^{-1}\omega n - \frac{1}{1+\frac{1}{2}}e^{j\omega}\right)$
	· Xa(e1w) = F{(4)-nu(-n)}
<del>-</del> ( }	$= \underbrace{-\infty}_{n=-\infty} (1)^{-n} - 100n  \text{let } m=-n$
	$= \sum_{m=0}^{\infty} \left(\frac{1}{4}e^{j\omega}\right)^m = \frac{1}{1-4}e^{j\omega}$
	· · · · · · · · · · · · · · · · · · ·



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#3.00A7)	$(2) H(e^{j\omega}) = \frac{Y(e^{j\omega})}{X(e^{j\omega})} = -e^{-j\omega} + 3$
	Y(e/w)(1+3=3w)
The second secon	
	$= \times (e_{1m})(-e_{-1m} + 3)$
W	V 7-1
- North and the second	$y(n) + \frac{1}{3}y(n-1) - \frac{1}{3}y(n-2) = 3x(n) - x(n-1)$
<b>*</b> 4,	$\frac{1(2\omega) (2\omega + 1)}{-\omega^2 + 7\omega + 13}$
	a) h(t)= F=1/Hyw)}
	$\frac{H(j\omega) = -1\omega - 1}{(j\omega)^{2} + 7j\omega + 12} = -j\omega - 1$ $= A + B$
	JW+3 JW+4
	$A = (j\omega + 3) + (j\omega) = -j\omega - 1 = 3 = 3$ $j\omega = -3 = -j\omega + 4 = 1$
	3 = (4w + 4) (14w)   = -1w - 1   = 3 = -3 $ w = -4 - 1w + 3   = -4$
	$ \frac{1}{2} H(y\omega) = \frac{2}{2} = \frac{3}{1} $ $ \frac{1}{2} U + 4 $ $ \frac{1}{4} F^{-1} $
	h(t) = ae 3 ut) - 3e ut)

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#4. apy (1)	b.) 1-(yw) = -Jw-1 X(jw)Jw-1 X(jw)Jw-1
	$\frac{3}{\chi(j\omega)} = (j\omega)^2 + 7j\omega + 12$
	$Y(j\omega)((j\omega)^2 + 7j\omega + 12) = X(j\omega)(-j\omega - 1)$
	₩ <del>Ţ</del> =1
	dylt) + 7 dylt) + 12 yll) = - dalt) - alt)
	at at v at
#5.	X(t) Forth y(t)
	· (XH) = S(+)
	y(t) = impulse response, htt)  = 3 -4t Utt) + 3 - at Utt) a C Utt) + 3 - at Utt)
	ae actrae ace
	a) treavency Hyw = F(htt)
	= 3 1 3
	a juty a juta
	$= \frac{3}{3} \left( \frac{1\omega + 3 + 1\omega + 4}{(1\omega + 4)} \right)$
	$= 3 \times (\omega + 3)$
	$\frac{2}{2(1112)}(1012)$
	$\frac{1+(j\omega)=3(j\omega+3)}{(j\omega+3)(j\omega+4)}$
1, 1	
•	,

#5. conta)	b) y(t) = ae-tut) - ae-tut)
<b>34</b>	次(七) = ?
	Y(118) = X(110) H(110)
	Y(yω)= X(yω) H(yω) 
	H(Jw)
0	3(1/142)
F Vacantaines y y antique age and antique y and a second	· Hyw= 3(jw+4)
-	
	· Y(yw) = 7{y(+)} = 3 3
	$= 2 + \omega + 4 = +\omega - 1$
	$= \frac{(40+4)(40+4)}{2(40+4)}$
	= 6 3 3
	Gm+1)(Im+4)
****	- X(Im) = X(Im) = (m+1)(Im+3) - (Im+3)
	HIJW) (JUH) (JUH3)
	$= \frac{2(4u+2)}{4u+3}$
	= $A$ $B$
	JW+1 JW+3
4-2	$A = X(\omega)(\omega+i) = 3(\omega+3) = 3 = 1$
	$\frac{1}{\sqrt{2}} \frac{1}{\sqrt{2}} \frac{1}{\sqrt{2}$
	$ 3 = \chi(10)(10)+3  = 2(10)+3  = -2$
	7,013
	Jw=-3 Jw=-3
	$\frac{2}{3} \times \frac{1}{3} = \frac{1}{3} \times \frac{1}{3} = \frac{1}{3} \times \frac{1}{3} = \frac{1}{3} \times \frac{1}{3} \times \frac{1}{3} \times \frac{1}{3} = \frac{1}{3} \times \frac{1}$
And the same state of the same	

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#5. boontd	V 7-1
	144= e-tull) + e-3tull)
Extra	X(t) > h(l) Y(t) Y(w) = Hyw) X(w)
Credit	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	Juny 1 3 MH2
<u>-</u>	hith >KH
	26 2000 11000 d to 2000 (2012)
	simply multiply Y(ju) by /H(ju)
Constitution of the second of	
	= H <sup>inv</sup> (yw) = 1 = (jw+4)(jw+2) H(yw) = 3(jw+3)
	egar squis