	Date: 2077/01/28
	Assignment-2 Page: (1)
1	[] (1+x²) dx = [[04 2] [BE 2070]
学	Sola Colonia
	lette T = 10g(1+x2) dx
	put x= tand, dx=sec2 0 do
3	when $x = 0$, $\theta = 0$ when $x = \infty$, $\theta = 51$
	So, $\hat{L} = \int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} \log \left(1 + \tan^2 \theta\right) \sec^2 \theta d\theta$
1	So, $\hat{L} = \int_{-\infty}^{\frac{\pi}{2}} \frac{\log(1 + \tan^2 \theta)}{1 + \tan^2 \theta} \sec^2 \theta d\theta$
	$= \int_{0}^{\pi/2} \log(\sec^{2}\theta) d\theta = -2 \int_{0}^{\pi/2} \log(\cos\theta) d\theta - (11)$
	bising proporties of definite integral
	$\overline{I} = -2 \int_0^{\pi/2} \log(\omega(\overline{x} - 0)) d\theta$
	= -2 \int_0 \log sin 0 d0 -(2)
	Adding (1) & (2), we get
	$21 = -2 \int_{0}^{\pi/2} (\log \sin \theta + \log (\cos \theta)) d\theta$
	$\frac{1}{2} = -\int_{0}^{\pi/2} \log\left(\frac{\sin 2\theta}{2}\right) d\theta$
	= - \(\frac{\int_2}{10g} \log \sin 20 + \log 2 \int_6 \dag{6} \dag{9}

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Page: 12) = - j'' log sint dt + log 2 [8] =-1 frog sint dt + log 2 (II-0) 2 (17/2) 2 J log sint dt + 17 log 2 -1 x 2 5 11/2 log sint dt + 17 log 2 $= -1 \times 2 \int \frac{11/2}{2} \log \sin \theta d\theta + \frac{\pi}{2} \log 2$

Page: 3 Q(2) $\int_{0}^{\pi} \frac{x + anx}{sec x + cos x} dx = \frac{\pi^{2}}{4}$ [BF. 2068] 102 Let I = Jo Ktonx d1 by using properties of delinite integral $T = \int_{0}^{1} \frac{(\pi - x)}{Se((\pi - x) + (\omega)(\pi - x))} dx$ -30CK - (0\$X)
-3CCK - (0\$X) $= \int_{0}^{\pi} \frac{f(\pi-x) + \cos x}{f(\sec x + \cos x)}$ = 5 tenx dx - 5 tenx dx. $= H \int_{0}^{\pi} \frac{\tan x \, dy}{\sec x + \cos x} - I$ $2T = \pi \int_{0}^{2\times (\pi/2)} \frac{\tan x \, dy}{\sec x + \cos x}$ $= \pi \int_{0}^{2 \times (\pi/2)} \frac{\sin t}{1 + \cos^{2} t} dt$ $= 2\pi \int_{0}^{\pi/2} \frac{\sin x}{1 + \cos^{2} x} dx \qquad \left[f\left(2 \frac{\pi}{2} + x\right) - fou \right]$ put cox = to you (x) - sinx dx=dt

Page: __KI wihen x=0, +=111 700-x 7 = TT ; t=0 when $T = -\pi \int_{1/\sqrt{14+2}}^{0} dt$ loveda = Totan totan Irhania Harris sin2x dx 1 = 1 104 (J2+1). Sinx + 105x (100 T2) let I = 1 1/2 sin2x dx dx to by wing properties of definite Entegral $T = \int_{0}^{T/2} \left[\sin \left(\frac{\pi}{3} - x \right) \right]^{2} dy$ Sin(3-x)+(0)(3-x) $\int_{D}^{H/2} \frac{\cos^2 t}{\cos x + \sin^4 x} dx$ Adding (1) & (31) we get

Siny + cosx log Trasec (x+II) - cot (x+II) 100 (J2+1) = 1 log (\frac{1}{2} +1)^2 = 1 x2 log (\(\sqrt{2} + 1 \) 1 log (J2+1)

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	10+	$T = \frac{\Omega}{2}$	di	I E mb.	1/2 dy		
		J	4+5	sint	6 4+10	siny . cos	7 2
		n,			2	it is	
1		= 6	sec	2. x dr	= (1/2	Sec 2 3	di
		4	4500	2. x dy		4+4 ton2	d1 + 40 +enx
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	1	out ter	7 7 =	1 3 2 50	27 17	>dt	
	<i>(</i>)	when	χ=0	1+=0	1 70	1 2 2 L	
3 3) 		$\Delta r = \mu r$	12, +=1	· · · · · · · · · · · · · · · · · · ·		1 2
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	ek*	0 44	771019	4 100	dt t2+10++		4(23)
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	0-71)	di		6/2	(++t) -	(4)	
	A) CA	6-1	100	- 2	1/2/2	<u> </u>	
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	Page: 9
	= (m u cou 8 de m - to 1 - to
	$= \int_0^\infty \frac{u \cos \theta d\theta}{G \sin \theta + 10 \cos \theta}$
	= (1/2 010) 40
	o cesing to cosd
_	$ (\frac{1}{2})^2$
	2 cos 0 do = - xh
	O Sin 8+(O)
9% a.s.	$-\int_{-1}^{4} \frac{1}{2} \frac{\cos \theta}{1} d\theta - \frac{1}{1} \int_{-1}^{4} \frac{1}{2} \int_{-1}^{4} \frac{1}{2} \frac{1}{2} \int_{-$
	Sin O+ (0x 8)
7	
	$\frac{1}{1} = \frac{1}{2} \frac{1}{2} \left(\frac{1}{2} \right)^2$
i i	+ - (01 (½-0) dg
	$Sin\left(\frac{\pi}{2}-0\right)+(o)\left(\frac{\pi}{2}-0\right)$
	- 1 ^{11/2} 0: 0 10 12 12 1
	$= \int_{0}^{\pi/2} \frac{\sin \theta}{\cos \theta + \sin \theta} d\theta - (2)$
	36 (30) (31)
	Adding (1) (k)
	$2I = \int_{Sin0+100}^{Z} \frac{\sin 0}{100} d\theta + \int_{Sin0+100}^{Z} \frac{\cos 0}{100} d\theta$
	SinOtion SinOtion
	= (= cos) + sind do
	SOS & + SIAD
	10
-	21= 521.00 = 795
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Date: Page: (11) = # 100 SIN (X+ II) AX - II 10/2 (OPER (X+ II) AX = TT log [(OSPI (x LTT) - (ot (x + TT) 7 1/2) \(\lambda \frac{12}{12} \right) \)
 \(\lambda \frac{12}{12} \right) \) = tr log ([2+1) 2 2I - T x 2 log [[2+1] 2I - II log (J2+1) $T = RT \log (J_2 + 1)$