Cal - Assignment 25	Date20
Cal - Assignment 2a	
Q1 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	70 × 1/4
a) In2 2odn	
$i = n^2$ $dv = 2^n dn$	
du= 2ndn v= 2"	N 4 1 18 - 1 1 1
$du = 2n dn \qquad v = 2^n dn$ $du = 2n dn \qquad v = 2^n$ $tn(2)$	766
$n^2 \times 2^n - \int 2^n \times 2n dn$	
(12)	2112 4 1 1
$\frac{n^2 \times 2^n}{\ln 2} - \frac{1}{\ln 2} \times 2 \times \int_{2^n}^{2^n} \times n dn$	
(n2 (n2)	
$n^2 \times 2^n - 2 \times \int n 2^n d^n$	1 1 1 1
ina ina	3" p. 16 #
$n^2 \times 2^n - 2 \times (n \times 2^n - 1n(2))$	[2" dr)
$n^2 \times 2^n - 2 \times (n \times 2^n - 1n(2))$	1 x [2" dn)
17(2) 17(2) (7(2)	(7(2)
A 73 1 1 2 -	J 160 1 1 1
$n^2 \times 2^n - 2 \times (n \times 2^n + 2$	-/ 1 × 2×
ln(2) $ln(2)$ ln	(2) (n(2) (n2)
	X+
22 x 2" - (n(2) x 2"+1	x x - 2
(n(2)	(2)3
3 + States Walter with - Walter	(2 h) an al
$\frac{n^2 \times 2^n}{\ln(2)} = \frac{\ln(2) \times 2^{n+1} \times 2^n}{\ln(2)}$	N-2"+C
in(2) in (2)	>

b) $\int x^5 dx + 2$

1 2 - 4t +4 dt

 $\frac{1}{2}\int \frac{t^2}{t'^2} - \frac{4t}{t'^2} + \frac{4}{12} \frac{dt}{t'^2}$

 $\frac{1}{2} \int \frac{t^{3/2} - 4t^{1/2} + 4}{t^{1/2}}$

1 x (2t² Jt - 8t Jt + 8Jt)

 $\frac{1}{2} \left(2 \left(n^2 + 2 \right)^2 \int n^2 + 2 - 8 \left(n^2 + 2 \right) \int n^2 + 2 + 8 \int n^2 + 2 \right)$

 $\sqrt{3}$ $\sqrt{3}$

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c)
$$\int x \cos^2 x \, dx$$
 $u = x$
 $dx = \int \cos x^2 \, dx$
 $dx = dx$
 $v = -\cot x$
 $\int -\cot x \, dx$
 $-x \cot x + \int \cot x \, dx$
 $-x \cot x + \int \cos x \, dx$
 $\int x^2 - q \, dx$
 $\int x^3 - q \, dx$

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e) I sinn un(cosn) dn
u= ln (cosn) dv= sinn dn
$du = 1 \times - sinn dn$ $v = -cos n$
$\frac{du}{\cos n} = \frac{1}{\cos n} \times -\sin n dn \qquad v = -\cos n$
Lncosn X - cosn - f - cosn x 1 x - sinn dn
COSM
-In(cosn) cosn - I sinndn
- (n(00 sn) cosn + cosn + c
f) [] 1-4n2 dn
$\int \int 1 - 4 \times \left(\frac{1}{2} \times \sin t\right)^2 \times \frac{1}{2} \times \cos t dt$
$\frac{1}{2} \int \int 1 - 4 \left(\frac{1}{2} \times \sin t \right)^2 \times \cos t dt$
$\frac{1}{2} \times \int \int_{-4}^{4} \frac{1}{4} \times \sin^{2}t \times \cos t dt $
1 x [[1-sin2t x cost dt]
5 7,
1 x Joszt x cost dt
3
1 Jost cost dt
1 (1 + 505 (21) d+
$\frac{1}{2}\int \frac{1+\cos(2t)}{2}dt$
1 x 1 1 1+005 2+ d+
1 x f 1 d+ + fcos 2+ d+
V B GENERY

$$\frac{1}{4} \times \left(\frac{1}{4} + \frac{\sin(2t)}{2} \right)$$

$$\frac{1}{4} \times \left(\frac{1}{4} \times \frac{\sin(2axcsin(\frac{\pi}{1/2}))}{2} \right)$$

[In-1 n2 dy t=n-1

It t2 + 2tIE + JE dt

[t/2 x t2 + 2t x t/2 + t/2 d+

1 + 5/2 + 2+3/2 + 1'/2 dt

2+3 st + u+2 st + 2+ st

 $2(n-1)^3 \int_{N-1} + u(n-1)^2 \int_{N-1} + 2(n-1) \int_{N-1}$

25x-103

h) [5+4n-n2 dn J-N2+4N+5 d4 []-(n2-4x+4-9) dn [J-((n=-2)2-9) dr [] 9-(n-2)2 dn ; t=n-2 1 J9-42 dt [] 9-3sin(a)2 x 3cos u du 3 x []9-(3sin(w) cosudu 3 x [] 9 - 9 sinu cos 4 du 3 x []9-(1-sin2u) cosu du 3 x Ja costu cosu du 3 x \ 3 00 5 u 00 5 u d4 3×3 Scosu2 du 9 x 1 1+ cos 24 da 9 x \$ 1 + cos2u du 9 x U + sin Ju

h)
$$\frac{q}{2} \times \arcsin \frac{t}{3} + \sin \left(2 \arcsin \left(\frac{t}{3}\right)\right)$$

$$\frac{q}{2} \times \arcsin \frac{N-2}{3} + \sin \left(2 \arcsin \left(\frac{x-2}{3}\right)\right)$$

$$\frac{q}{2} \times \arcsin \left(\frac{N-2}{3}\right) + \left(N-2\right) \int_{S-N^2+1}^{N} dN + C$$

$$\frac{1}{2} \int_{S}^{N} \times \sin 2N dN$$

$$\frac{1}{2} \int_{S}^{N} \times \sin 2N dN$$

$$\frac{1}{2} \left(N \times \left(-\cos 2N\right) - \int_{S}^{-\cos 2N} dN\right)$$

$$\frac{1}{2} \left(N \times \left(-\cos 2N\right) + 1 \times \left(-\frac{1}{2} \times \cos 2N\right) dN$$

$$\frac{1}{2} \times N \times \left(-\cos 2N\right) + 1 \times 1 \int_{S}^{\cos 2N} dN$$

$$\frac{1}{2} \left(N \times \left(-\cos 2N\right) + 1 \times \sin 2N\right)$$

$$\frac{1}{2} \left(N \times \left(-\cos 2N\right) + 1 \times \sin 2N\right)$$

$$\frac{1}{2} \left(N \times \left(-\cos 2N\right) + 1 \times \sin 2N\right)$$

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$$\frac{1}{2} \left(N \times \left(-\cos 2N\right) + 1 \times \sin 2N\right)$$

J) Jan-n2 dr
[[] a val dy
J-x2+2x-1+1 dx
[[(2 2 2)]]] dy
J-(n2-2x+1)+1 dn
JJ2-(n-1)2 dx; t= n-1
JJ2-+2 dt
[] 1-sinu² x cos u du
Josuz cosu du
(cosu cosu du
J cos 2 u du
The state of the s
[1+ cos2u du
1 x 11+ cos 2u du
1 x St x sty u+ sinzu
1 arsint + sin(2 arcsin(+)
1 (arcsin (n-1)+ sin(darcsin (n-1))
d
arcsin(n-1)+(n-1)]-n2+2n +c
3



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(n3 + 3 + 4/n'	15 d n
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u	5 x + c
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J 12n2+24n+60	1/2
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24 / 2 2 , 24 x t	60)+C
$\frac{1}{2} \times \ln(12n^2 + 2un + 1)$	y a rida "N
Zu	
	-1-10 (1 1) (1-11 material)
A Marian Marian	

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 $m) \int \frac{n^2+1}{(n^2-2n+2)^2} dn$

 $\int \frac{n^2}{(n^2 - 2n + 2)^2} dn + \int \frac{1}{n^2 - 2n + 21^2} dn$

= $x(N+ayc+an(n-1)(n^2-2n+2)-1)$ - 1 sin(2ayc+an(n-1)-1)

 $(n-1)(n^2-2n+2)(\frac{n-1}{n^2-2n+2}+\arctan(n-1))+1$ (arctan(n-1)+

1 sin (2arctan(x-1)

= $x (n + avctan(n-1)(n^2 + 2n+2)-1) - 1 sin(2avctan(n-1)) +$

 $\frac{1}{2} \arctan(n-1) - \frac{(n-1)(n^2-2n+2)(\frac{n-1}{n^2-2n+2}) + \arctan(n-1) + 1}{2} + \alpha rctan(n-1)} + 1$

n) Jern dn; t=) n	
J2tet dt	9 to 2 to 4	1
2 Stetdt		
2 (tet-jet dt)		1
2 (te* - e*)		
2 (In e ^{In} - e ^{In}) 2 e ^{In} In - 2 e ^{In} + c		
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of Sec3 n tann dn	1	
1 d+		
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1 Sec ³ N		
<u>sec³n</u> + c		
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2)	1	1	+	Ja) qui
	1	N2			/

 $\int \frac{1}{n^2} + n'/a \, dn$

$$\frac{-1}{n} + 2n \sqrt{n} + C$$

We have the first the world and the