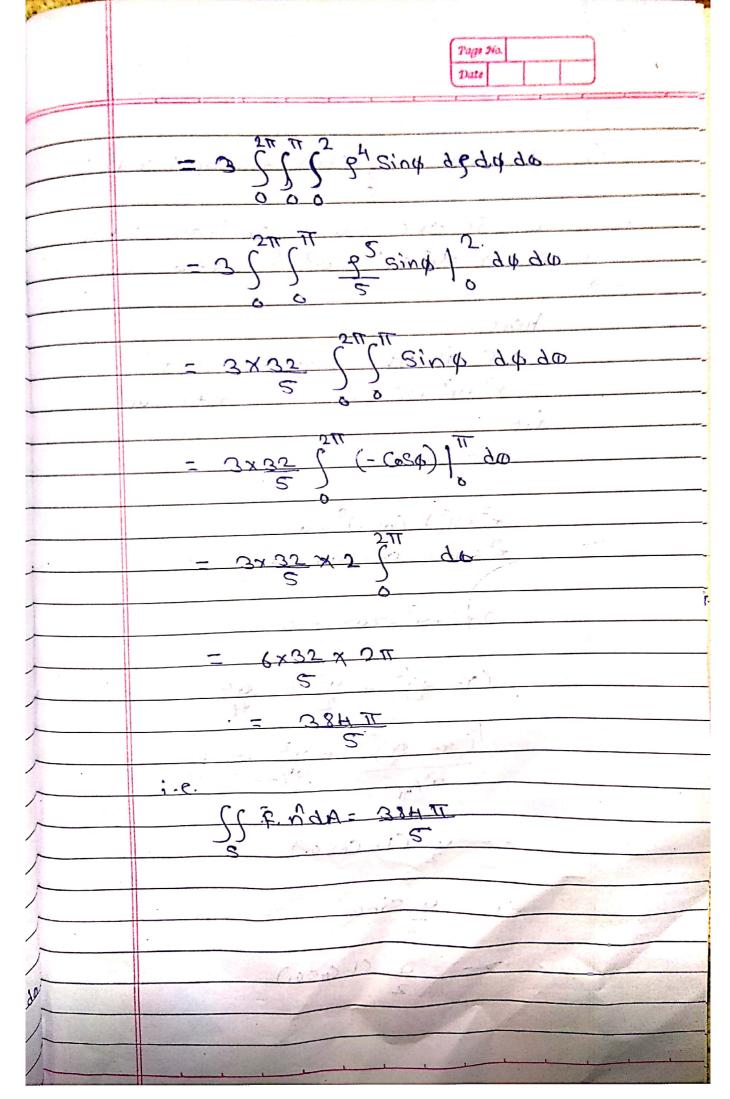
	111813018 Jongove Sanker.S.
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	Production.
@1)	State the theorems which link line
	integral with surface integral &
<u></u>	surface integral with volume integral.
↓	
1	Theorem which link line integral with
1	surface integral
	Stokes theorem:
3	Let. S be the Piecewise
\ <u></u>	Smooth oriented Surface in Slace &
1	let bounday of S be Smooth Simple
	Closed Charve C. let, F(x, 4,2) be
-	a Continous vector function that
\	hos Continous first parstial deal voting
) 	in a domain in Space antaining
1	S. Then
<u> </u>	CC
	S Curicf).ndA = & F. 2°(5) ds
1	Inhere,
	n = Unit normal vector of S
	2' = de = Unit sangent rector
	S = once length of c.
	In Components.
1	CC V (2fo of
	$\frac{b}{2l} \left(\frac{\partial \lambda}{\partial t^3} - \frac{\partial S}{\partial t^5} \right) h' + \left(\frac{\partial S}{\partial t'} - \frac{\partial Z}{\partial t^3} \right) h^5 + \left(\frac{\partial S}{\partial t'} - \frac{\partial Z}{\partial t'^3} \right) h^5 + \left(\frac{\partial S}{\partial t'} - \frac{\partial Z}{\partial t'^3} \right) h^5 + \left(\frac{\partial S}{\partial t'} - \frac{\partial Z}{\partial t'^3} \right) h^5 + \left(\frac{\partial S}{\partial t'} - \frac{\partial Z}{\partial t'^3} \right) h^5 + \left(\frac{\partial S}{\partial t'} - \frac{\partial Z}{\partial t'^3} \right) h^5 + \left(\frac{\partial S}{\partial t'} - \frac{\partial Z}{\partial t'^3} \right) h^5 + \left(\frac{\partial S}{\partial t'} - \frac{\partial Z}{\partial t'^3} \right) h^5 + \left(\frac{\partial S}{\partial t'} - \frac{\partial Z}{\partial t'^3} \right) h^5 + \left(\frac{\partial S}{\partial t'} - \frac{\partial Z}{\partial t'^3} \right) h^5 + \left(\frac{\partial S}{\partial t'} - \frac{\partial Z}{\partial t'^3} \right) h^5 + \left(\frac{\partial S}{\partial t'} - \frac{\partial Z}{\partial t'^3} \right) h^5 + \left(\frac{\partial S}{\partial t'} - \frac{\partial Z}{\partial t'^3} \right) h^5 + \left(\frac{\partial S}{\partial t'} - \frac{\partial Z}{\partial t'^3} \right) h^5 + \left(\frac{\partial S}{\partial t'} - \frac{\partial Z}{\partial t'^3} \right) h^5 + \left(\frac{\partial S}{\partial t'} - \frac{\partial Z}{\partial t'^3} \right) h^5 + \left(\frac{\partial S}{\partial t'} - \frac{\partial Z}{\partial t'^3} \right) h^5 + \left(\frac{\partial S}{\partial t'} - \frac{\partial Z}{\partial t'^3} \right) h^5 + \left(\frac{\partial S}{\partial t'} - \frac{\partial Z}{\partial t'^3} \right) h^5 + \left(\frac{\partial S}{\partial t'} - \frac{\partial Z}{\partial t'^3} \right) h^5 + \left(\frac{\partial S}{\partial t'} - \frac{\partial Z}{\partial t'^3} \right) h^5 + \left(\frac{\partial S}{\partial t'} - \frac{\partial Z}{\partial t'^3} \right) h^5 + \left(\frac{\partial S}{\partial t'} - \frac{\partial Z}{\partial t'^3} \right) h^5 + \left(\frac{\partial S}{\partial t'} - \frac{\partial S}{\partial t'^3} \right) h^5 + \left(\frac{\partial S}{\partial t'} - \frac{\partial S}{\partial t'^3} \right) h^5 + \left(\frac{\partial S}{\partial t'} - \frac{\partial S}{\partial t'^3} \right) h^5 + \left(\frac{\partial S}{\partial t'} - \frac{\partial S}{\partial t'^3} \right) h^5 + \left(\frac{\partial S}{\partial t'} - \frac{\partial S}{\partial t'^3} \right) h^5 + \left(\frac{\partial S}{\partial t'} - \frac{\partial S}{\partial t'^3} \right) h^5 + \left(\frac{\partial S}{\partial t'} - \frac{\partial S}{\partial t'^3} \right) h^5 + \left(\frac{\partial S}{\partial t'} - \frac{\partial S}{\partial t'^3} \right) h^5 + \left(\frac{\partial S}{\partial t'} - \frac{\partial S}{\partial t'^3} \right) h^5 + \left(\frac{\partial S}{\partial t'} - \frac{\partial S}{\partial t'^3} \right) h^5 + \left(\frac{\partial S}{\partial t'} - \frac{\partial S}{\partial t'^3} \right) h^5 + \left(\frac{\partial S}{\partial t'} - \frac{\partial S}{\partial t'^3} \right) h^5 + \left(\frac{\partial S}{\partial t'} - \frac{\partial S}{\partial t'^3} \right) h^5 + \left(\frac{\partial S}{\partial t'} - \frac{\partial S}{\partial t'^3} \right) h^5 + \left(\frac{\partial S}{\partial t'} - \frac{\partial S}{\partial t'^3} \right) h^5 + \left(\frac{\partial S}{\partial t'} - \frac{\partial S}{\partial t'^3} \right) h^5 + \left(\frac{\partial S}{\partial t'} - \frac{\partial S}{\partial t'^3} \right) h^5 + \left(\frac{\partial S}{\partial t'} - \frac{\partial S}{\partial t'^3} \right) h^5 + \left(\frac{\partial S}{\partial t'} - \frac{\partial S}{\partial t'^3} \right) h^5 + \left(\frac{\partial S}{\partial t'} - \frac{\partial S}{\partial t'^3} \right) h^5 + \left(\frac{\partial S}{\partial t'} - \frac{\partial S}{\partial t'} \right) h^5 + \left(\frac{\partial S}{\partial t'} - \frac{\partial S}{\partial t'} \right) h^5 + \left(\frac{\partial S}{\partial t'} - \frac{\partial S}{\partial t'} - \frac{\partial S}{\partial t'^3} \right) h^5 + \left(\frac{\partial S}{\partial t'} - \frac{\partial S}{\partial t'} \right) h^5 + \left(\frac{\partial S}{\partial $
	(32 - 361) 43 dada =

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	= 8 (F.dx + F2dy + F3dz)
	Juliene,
	F= [F1, F2, F3] & N-[W, W2, N3]
	ALSO, POR WAITED A WATER TRADERIOR & CO.
	NdA= N & 8'dS= \ dx, dy, dz
3	Curve c is represented by recurry.
,	99/ 1 V3/19 20 11 11 11 11 11 11 11 11 11 11 11 11 11
rosen.	a Theorem which link Surface
27	integral with volume
105-1.1	Divergence theorem of gouls,
	les, Then or crosed bounded
	region in space whose boundarey
	is or pierewise smooth orientable
	surface S. Let, Fick, 472) be a restor
	function that is Continous of has
	Chinal Eight borghal dealy attack
	in some domain antaining T. Then,
	CC D 10
	SSS dix Fdx - SS F. ndA.
	T
5.17	In Components
<u> </u>	22 (35, + 363 + 363) Axga gs
	= SS (F. GSd + F2 GSB + F2 GST)
	CC
	= SS (F, dyd2 + F2 d2dx + F2 dxdy)

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Contraction of the second of t		
	Whene,	
	F- [F1, F2, F3]	
	n= 1 Cosd, Cosp, Co	
1	-in, in 1-in 2 [27]	
(32)	Evaluate the follows	
1 -/	UK JA 7-34 W & L. 3A	
(4,41)=-	a) Evaluate the line	& parestais
	& F(x). dx Counter Co	
	around the boundary C	
	B, where F = [342, 3	x-yHJ, R is
4000	The Square with re	xxices (1,1), (-1,1)
1 2 2 2 2 2 2 2	(-11-1), (11-1)	
1822-6		ways is
1012777	Hene	/d 2 /
	1. E-1392 - 2-AH	
	ig-en and the same	As in 1
1	F1 = 342	milens)
	F2 = 7-44	
Total Control of the	Then,	
	by green's theor	12m.
	15 (262 - 361) gra	4. = (F(3) 13
-	K (02 37)	
	Mow) / and	1772-03
	2f2 = 1	
(20 - 21	3x - 1155 -	
NA I	2fr = 64	
free of a	- 16:240, -A 1 7:17/	
	3	
		- de de la companya del companya de la companya del companya de la

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	from Opposite the water
	8 F(8) 45 - SS (1-64) 2 x dy
	Mow. If y both vasies from -1 to 1.
	î-e.
i Pour en	\$ FCE) 95 - 28 (1-64) 9.894.
	= (x-6xy) dy
	= ((2-124) dy. 3/4
	Contal mont souther 9
,	1-4004-6A5 July
*	THE TO MAKE THERE IN.
	= -H + 8
	\$ F(-8) 23 = 4.
P)	: Evamore St. E. vapere £= [x3,y3,3]
	Sig the Surface of the Behere
	22+42+55=H
	Hedel
	F= [x3, y3, 23]
2	

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	by gouls divergence theorem
	SS F. EdA = SSS div Edv.
	S
	Man, f = 3 x2. + 342 + 352.
	Converting into Spherical Co-ordinade
	(8, \$, 0)
	0 0 0 12
	x2 xy2 + 22 = 82
	dr = gring
	A150,
	9 vasies from a to 2.
	& vorsies from 0 to TT
\	o vorsies from a to st
	, CC = 0 CCc
5027	S FADA = SSS div f dv.
	The state of the s
	Ill girt gr = [[3(x3+43+55) gr.
	T
	211 11 2 3 g2 g2 Sind dg ddda
	200 Sind de data



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<u> </u>	Evaluate 2 292 + 393 + 3951
	c is the Course of intersection
	10-11-2-19-1-2-01
	2
	Hear
	x2+y2+22=02 & x+2=01.
	1-6
	72-101-20 -
	x2+y2+ (a-x)2-a2
	x +42 + 02 - 20x + x2 = 03.
	2x +3-20x = 0.
	$\pi \circ \pi \circ$
	(x 3) + 45 = 05
	7 11 26 2
	(x- a)2 + 42 -1
	2/4 9/2
	TT 1125 - 116 7 7 77
	7- Q (1+ CoSO)
	y= 9 Sino
	1/2
	7 = Q (1-(eso))

	(Manu A/a)
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	•
	$dx = -\alpha \sin \alpha$
	-2_
	dy - 0, Coso
	N.5
	22 - 9 Sino
	AS, 6 vorsies from 0 to 217
	C
) Agx + 5gh + 2gs
A	= (- ex sino ex @ Sino + ex (1-(050)
	- S - or sino or @ Sino + or (1-caso)
1	x 9 3 656 + 9 (1+(050) 01 5 in 0
	0.54
	- SF- 92 Sin20 + 92 Coso + 92 x
	(a) (b) (c) (c) (c) (c) (c) (c) (c) (c) (c) (c
,	CI+(osa) Sina Jda
	2
<i></i>	= -012 xHXII +0 - 02 xHXII
1	
	$= -\frac{\alpha^2 T}{\sqrt{2}}$

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03)	
	a) prove that or line integral
	(f(2). d2 = (frdx + frdy + frd2) with
	c
	Continous F., F2, F3 in or domain D
	in space is independent of Posts
	in D if the rector function
	F- [F1,F2, F3] is the Gradient of
	Some function f in Die F- gradel
	To Prove'->
	line inhermal is independent of lash
	if in domain if Fis the gradient
	of Some function F
	Some take toky
	Proof =
	henetion F.
·	j-e.
	$E_{1} = xt$
	Ze
	F2 = 3f
	34
	F3 = 26
	35.
	the assume that,
	F= grad & haids to = Some
	function f in D. & Show that
	this implies. Posts independent
-	

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1,5	Lexi c be any footh in 0 from
	any point A to any Paint Bin
,	D. given by
	2(t) - [x(t), 4(t), 2(t)]
	Cathere,
	aittib.
	then
	(Frax + h dy + fad2 =
	(3f 9x + 3f 93 + 3f 95.
) 192
	b
11/2 10	- 2 (3x gx + 3f gx + 3f gx)go!
,	- ('dF d±
	a dt 12b
	= E (x(4), A(4), 15(4))
The second secon	t= a
The same of the sa	-F(B)-F(B).
	which implies. that & freeze is path independent
	thas becario
1	
The state of the s	

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P	Parametrize the following Come
	C: The intersection of
	2745+55-05 & 5-A5.
	Hereir my me I was
	35+13- +53= 05
	32+2+22-02.
	and the
	x2+ 22+2-02.
	52 + (2 + 2)2 - Q2 +1
	2)
54	which is circle of
J 6	2= (0,0,-1)
	V T T
2 4 4 4	184, Conve refresenced by Eco, 0)
(46 7+,	other.
	J= 2650- V271 Coso.
	44 97 -
	2= 29ino - Jan 5ino
	3-25 COK (D) 2 -
	4= 0
	1.0 / 12 - 12 -
	(000)= 1020 HOV = (0,0)
424,489.	1200 01 1200
	~ (0,0) = \ \a^2 +1 (050, \$ \ \a^2 +1 Six
	H