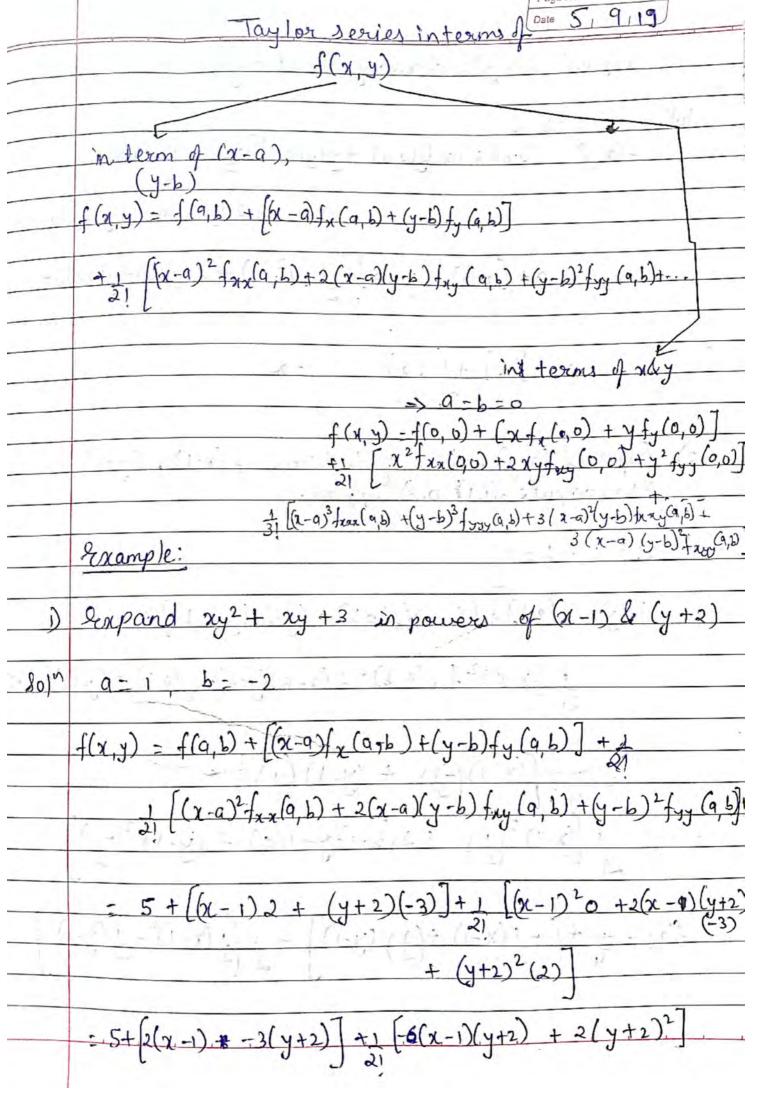
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X	The posion of Tayloris series (one variable)
- At	This reason (and marriable)
*	aylors series (one vivia)
-	If f(x) is an infinitely differentiable ft" of f(x) throughout some interval containing a as an
$\rightarrow$	If f(x) is an infinitely differentiate
	the analout some interval containing a as an
	thoughour some sites was a land and
	interior point then f(x) can be expected
	as a power series in (x-a). This series is called
	a a proceed section in the order
	Taylor series of (x-a) form.
	CC ) CC ) . C ) M()
7	$f(x) = f(a) + (x-a)f'(a) + (x-a)^2 f''(a) + (x-a)^3 f'''(a)$
	21 3
A case 1:	4 + 6 1
	It we put (x-a)-h => x-a+h
	-f(a+h)-f(a)+f(h(f'(a))+(h)2f''(a)+
	- q(a)) - q(a)) + (h) - q (a) +
-	21.51
* cosez	If we put a=o in 1 then
	$f(x) = f(x) + (x)f'(x) + (x)^2 f''(x) + \dots - 2$
	21
	This societ (a)
	This series (3) is called machaving series
	This series is a sécial case of Taylor series.
	Taylor series

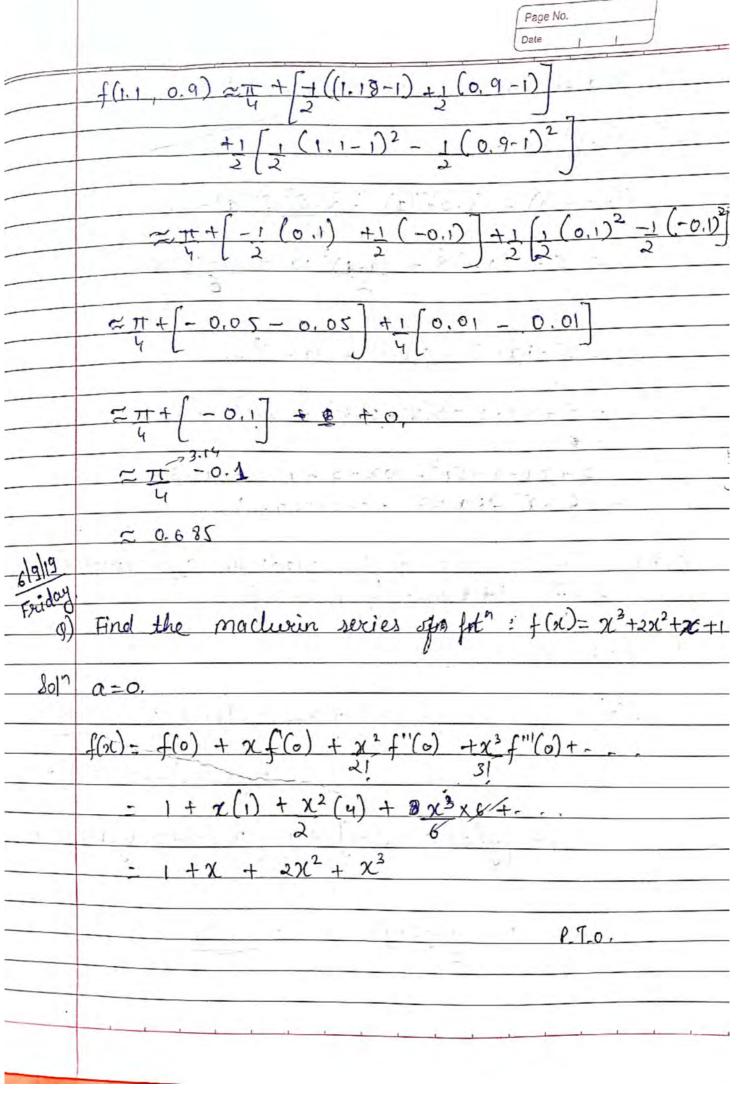
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	: All
-	$\frac{109(1+x)-0+x-x^2+2x^3}{21}$
200	
	2 100 0001
0.9	Supand $\log x$ in power of $(x-1)$ also evalue $f(x)$ $f(1,1)$ - $\log (1,1)$ $f(x) = \log x$
	eras er is - Josefus
- CIV	
_ الله	J(n) = 109 1
	9=1
	, , , , , , , , , , , , , , , , , , , ,
	f(x)-f(a) + (x-a)f(a) + 61-9)2f"(a) +-
34	2
	f(i) = 0
	f'(x) = 1 $f'(x) = 1$
	7 (1) = 1
	(1) (1)
	$\int_{-\infty}^{\infty} (x)^{2} - \frac{1}{x^{2}}$
	Li Cara de la caracteria de la caracteri
	\$: 109x= (x-1) 8-1 (x-1)2+
	J (L-1) to
	the state of the s
	1
	$\frac{1}{2} \log(1.1) \approx 2000 (1.1-1) - (1.1-1)^{2}$
	21
	0.1 = (0.1)
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	≈ 0:1 = 0.01
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	≈ 0.1 - 0.005
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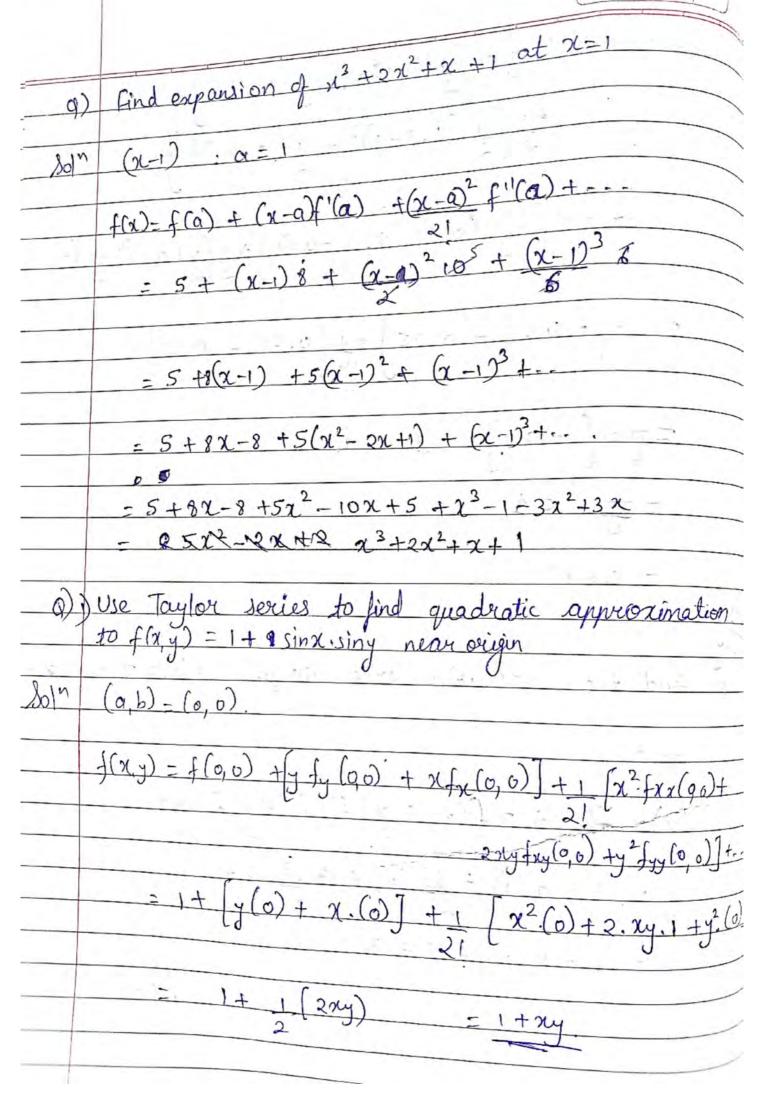
Page No. Date f(x)=sinx in terms of 61-1) f(x)= sinx a = 1 f (1) - sint f'(x) = cosx "(x) = - sinx "(i) = - sin1 = : : sin x = Sin 1 + (x-1) (cost) + (x-1)2 (-sin1)+... in ferms of from ) > sign. Also evaluate sin 44° 5010 f(x)= sin(# +x) a=0 = - cos/11+x  $\frac{+ 21 \cdot 1}{\sqrt{2}} + \frac{2^2 \cdot (-1)}{\sqrt{2}}$ - sin (++x PITO

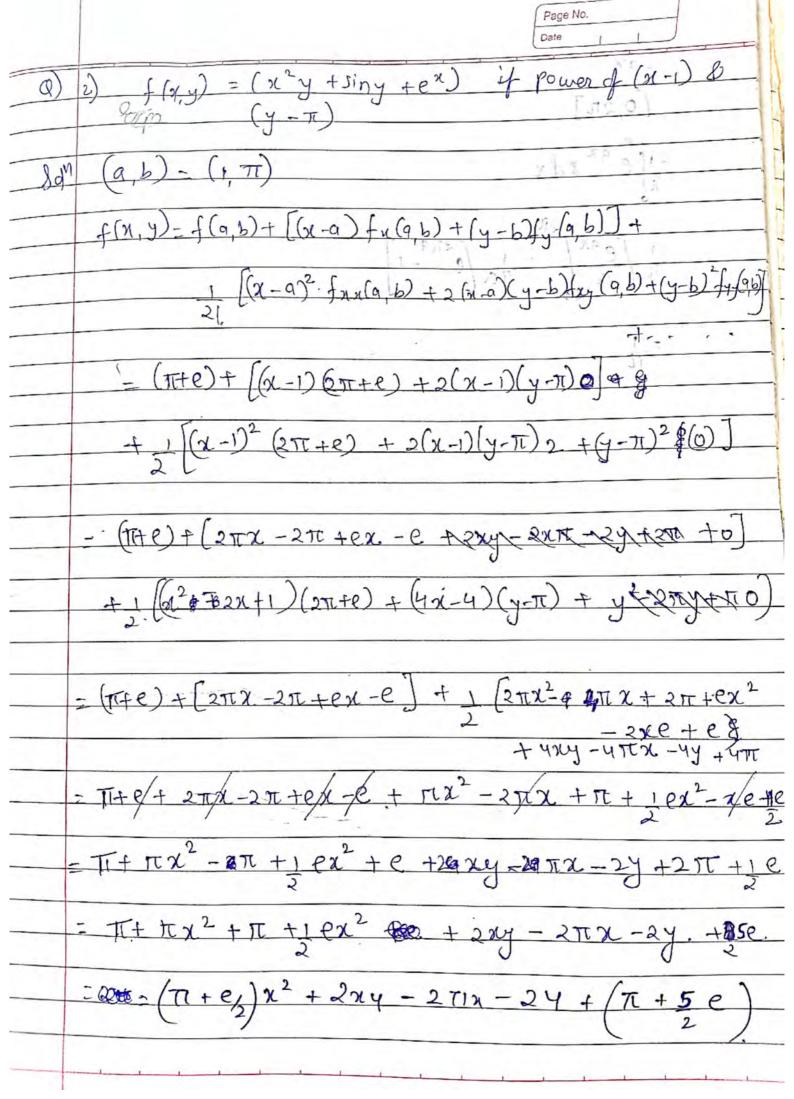
Date sin 44° = sin (45°-1° (80) 180 = sin 44" 180 180  $(x-1)^{4} + 2(x-1)^{3} + 5(x-1) + 2 in$ 



	2) Expand f(x,y) = sinx.cosy in at oxigin
	Quand f(x,y) = sinx cosy to
	2) Perpand $f(x,y) = 0$ $f(x,y) = f(0,0) + (x f_{y}(0,0) + y f_{y}(0,0) f_{y}(0,0) + y^{2} f_{y}(0,0) f_{y}(0$
-	101": a=b=0 + [x fo(0 0) + y fy(0,0)] +1
	f(x,y)= f(0,0) + (2 1/10,0) - 50 2 xyfxy(0,0) + y2 fyyloo)}
	(x) + (x)
	$= 0 + (x(1) + y(0)) + 1 [x^{2}(0) + 2xy(0) + y^{2}(0)] + .$
1	
	$\frac{-0+(x)+1(0)}{2}$
3)	Expand fay) = tant y in terems of (x-1) & (y-1) Also compute f(1.1), 0.9) Express.
	Also compute fl. 18, 0.9) Capprox.
3010	a=1 $b=1$
-	f(x,y)= f(a,1)+(x-a)fx(a,b)+(y-b)fy(a,b)]+
	1 [(2 0)2 [ ( )
	[ (x-a)2 fxx(a,b)+2(x-a)(y-b)fxy(a,b)+(y-b)2fyy(b)].
-	J 27 1 19(18)
	$\frac{1}{4} = \frac{1}{4} \left( \frac{1}{2} + \frac{1}{4} \right) \left( \frac{1}{2} \right) + \frac{1}{4} = \frac{1}{4$
	$\frac{1}{\left(x-1\right)^{2}}\left(x\right)$
-	$\frac{2}{1}(x-1)^{2}(1) + 2(x-1)(1)(0) + (y-1)^{2}(-1)$
-fla	
) 10	4 -1 (x-1) +(1) (y-1) 1
+	$(2)$ $\frac{1}{2}$ $\frac{1}{2}$ $(x-1)^2$
-	$\frac{1}{y} = \frac{1}{y} \left\{ \frac{1}{2} (x-1) + \frac{1}{2} (y-1) \right\} + \frac{1}{2} \left[ \frac{1}{2} (x-1)^2 - \frac{1}{2} (y-1)^2 \right]$
1	







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