## Міністерство освіти і науки України Національний університет «Запорізька Політехніка»

Кафедра програмних засобів

## **3BIT**

з лабораторної роботи №4 з дисципліни «Вища математика, математичний аналіз»

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Виконав:

## Задача 1

12-5)	-(-2	15).	3			+	8					# (S)	gist									
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	y 2 - 5	-	2,	2	92	0	, ,		5 2	3	2v	2									dhe	1
2. 61 3=	(3x 2-	244		,	13	d	X	1×	+-	dy	Eu	3				-					1	
1 d	191-	(3v		35 V.	3	1	1	_		191												
d	dy	Cy		3 g w	1	-	36	<b>λ</b>	_	35	w/	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	dx		3 x	2	35	r).	-		-	-
= 31	) x -	Devi		(x-	34)	100	-			2	y.V							1				
15	- dg	(3x2	10.0	5×)	3-	31	3x	2	1	39	x)	2	dy	-(	3x	2	39	x)	=			+
= 03	- 31	3 or 2			12/	*/	× -	2		IV	4	2/	2	2	,		12	<i>(-</i>	34)	1.		
20		342		6	¥-								32		)	( X		(x)	de	3		
5) (	x 5)	= 0	co	× 1 5			×		d	à.	X	×,	1	-	of	(x	4					+
= of f	= Tx	e con	(3)	1	0	W .		4	7	Csf	9	1	-				1-	u	2	7	り	
3	dy e	cot (	5/	- 0	Cor	3	7	d	Co	1	5	1	6		of l	5/	-4	2/	3	1/-	×	)
: 03	e 4	x (5	1	- GRE	21	× /	1	9	dx.	+ 6	-	08	(3	1	-0	sc	= (	X)	1-	2	dg	
3= 2x+1	/ X =	1-2	8	3=	1+	pua.	·GL,	/-	1						8		2					
de de	TX	1 0	-	d's	12		1	- 0					-		-3		5-					
dx - dx	24/	= 9	2	1	Port	1)2	1			NI.			-	10.00				-				

elf d 52 eg
dy - dy 2x+1 = 2x+1
dx d (1-2+)=-2
13 = 17 ( 14 orchan (+)) = 1+62
$\frac{d_3}{d_4} = 6^2 \left( -\frac{2}{(2v+1)^2} \right) (-2) + \frac{26}{2x+4} \cdot \frac{1}{1+x^2}$
$f = \sqrt{0} = 0 - \sqrt{0} = (-20) = 1$
5(0)= 1+ ariton 101=1
$\frac{d^{3}}{dt} = \frac{1^{2}(-\frac{2}{(2(1)+1)^{2}})(-2) + \frac{2(7)}{2(1)+1} + \frac{1}{1+0^{2}}}{(-2)^{2}}$
$= \frac{d_3}{u_1} \Big _{x=0} = \frac{4}{9} \Big _{3} = \frac{20}{9} = \frac{2}{3} \Big _{2}$
4. X Las (5) + 9 cos (3) + los (x) = 5
F(x,5,3) = V hus (5) + 5 wes (3) + Hom (x)-5
$F(x, x, y) \rightarrow 0$
E F J J J J J J J J J J J J J J J J J J
3 =
1 15 -3 X Wood (+ cos 3 - x cos 11 cos 2)
35 7 17 - 4F - 9 mm J - 4 shi g
2 d3 x d ( May 4 Re 3 x ) - (5 th 3) (50 4) - ( Am ( Mei 2 x) (5 Im)
dy = dy ( 5 mg) - (9 mg)2
(o) Ma 3/4 = 5 ( ma 3 ) = 5 (end 3) 36 = 4 (45) 28 (45)
3/1 = (9 mm 3) (cong) - ( mm 4+ sec 8) (x ( wo 5 cos 3) + cos 3 1)
19 19 19 19 19 19 19 19 19 19 19 19 19 1

11 11 2 Con 6 1- (M/1/2 - 20, 2 V/x /201 1/2 2-1)	
3v5 - (91h, 3 cos 6) - (707) 5 + PRE 47/x / cos 9 cop 3/ + (40 23)	
(d) M( x cost + (cos 2)) / 6 ble 1 1 1 1 / (cost + cos of ) (cost	-
39x - dx - dx (5 44 5)	-
	-
(9 lun 3/x = 9 ( lun 3) x = 9 ( cos 3 1 30x = 9 ( cos 3 ) ( den 3 x 200 x ) ( den 3 x 200 x )	
3 gv = (9 m 7 43 5) - ( V 60 5 + 40 3) ( 4 (02 3)) ( 4 m 5 + let 2x) 3	-
	-
= (4 mm) (403 61-(x 63 4 4 00 3) (x (mm 4 00 3) + (Bec 2 2 20) 3)	
1521/ an 231	
5. Si V2+52= 3+x+5, Mo (1,-3,12)	4
	+
F(x, y, 3) = x2+ 52- 3-x-9	
F. F. Harrison F. C.	
(x, 9, 1) = 0 $(x, 9, 1) = (2x-1, 2y-1, -1)$	-
01(1,-3,12)=12(11-1,2(-3)-1,-1)-11,-2,-1)	1
M=0	
1/0=(1, -2, -1)	-
Tx (Mo) (0x-80) + f 5 (Mo) (4-90) + F 3 (Mo) (3-30)=0	1
(1)(X-1)+(-1)(4+3)+(-1)(3-12)=0=	
= x-7(-) 32 = 0	-
- 7-45-3-32 ED	-
6. 3 = e 2x-75	
1 def = d/df) = 6/4 22243 1 402x2+42 12 22253	_
Try = dr dr dr dr	-
1 = 014 - d ( of ) = 1 (2 ( 2 x 2 + 3 2 ) - 20 2 x 4 y 19 , 0 2 x 4 y	2
199 dy 1 ( clf) - d (200 2x 24 92) - 2x 2452	
1xy = 2 = 2 (29e ) = 0x5e x	_
2x 24 5 2 / 2 2x 24 5 2 / 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	-
3=7ck,4)=0 1 10xx=10 +0x0	-
10=202x2+32 54, 202x2452 / = 1x40	
19 - 19 - 19 - 19 - 19 - 19 - 19 - 19 -	-

$\begin{cases} (x,y) = 5\sqrt{-2}xy + 5^2, & M_0(1), & \sqrt{(x,y)} = (10x - 2y, -2xy) \\ 0 = 2i - j & \frac{8}{10} \\ \sqrt{6} + (M_0) = \sqrt{(M_0) \cdot \frac{8}{10}} \\ \sqrt{(M_0)} = \sqrt{(M_0) \cdot \frac{8}{10}} \\ \sqrt{(M_0)} = \sqrt{(M_0) \cdot \frac{8}{10}} \\ \sqrt{(M_0)} = \sqrt{(M_0) \cdot \frac{2}{10}} \\ \sqrt$	J. 3=52-24442, Mo11,11, R=28-5
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	(cx,5) = 5x2-245+52, Mo (1,1), V(1x,5)= (10x-25,-2x+3)
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	1) $\bar{R} = Zi - \bar{J}$ $\hat{Q} = A(M_{\bullet}) - 2A(M_{\bullet}) \cdot \frac{\hat{R}}{\sqrt{R}}$
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	V6(M0)= \{(1,1)= (10(1)-2(1), -2(1)+2(1)=(3,3)}
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	1 8U - (2)24(-1)2 5 5 5
$ \frac{d}{d} = 3 = x^{2} - x + 4y^{2} + 9x - 6y + 20 $ $ \frac{d}{d} = 2x - 3 + 5 \qquad dy = 2y - x - 4 $ $ \frac{2x - 5x + 9 = 0}{2y - x - 6 = 0} $ $ (x, y) = (-3, -6) $ $ \frac{d}{d} = 2x - 3 + 6y $ $ \frac{2x - 5x + 9 = 0}{2y - x - 6 = 0} $ $ \frac{d}{d} = 2x - 3 + 6y $ $ \frac{2x - 5x + 9 = 0}{2y - x - 6 = 0} $ $ \frac{d}{d} = 2x - 3 + 6y $ $ \frac{d}{d} = 2x - $	Do f(M0) = (8,0). (55, 05) = 55
$\begin{cases} b_{y} = 2x - 3 + 5 \\ 2x - 5 + 9 = 0 \\ 2y - y - 6 = 0 \end{cases}$ $\begin{cases} (y, y) = (-3, -6) \\ b_{yy} = 2 \\ 3y = 6 = 0 \end{cases}$ $\begin{cases} b_{yy} = 2 \\ 4y = 2 \\ 3y = 4 \end{cases}$ $\begin{cases} b_{yy} = 2 \\ 2y = 4 \end{cases}$ $\begin{cases} b_{yy} = 2 \end{cases}$ $\begin{cases} b_{yy$	
	6v=2x-345 85=25-x-1
$D = 6xx + 6yy - (1xy)^2 = 9 - 1 = 3$ $D > 0, f(x) > 0 - accurate accurate according (x, y) = (-3, -6)$	2y-529=0 2y-y-6=0
$D = 6xx + 6yy - (1xy)^2 = 9 - 1 = 3$ $D > 0, f(x) > 0 - accurate accurate$	(v, 5) = (-3, -6) $(x, 5) = (-3, -6)$
(x,y)=(-3,-6)	D= 6xx + 645 - (1x4) = 4-1= 9
1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	y 3= \(\frac{1}{2} + 5^2 \times - 5 = 1
3= {1/2,1/2 = x 2+32 g(x, 5)= x-9-1	3= {1/2,15}=x2+52 9(x,5)=x-5-1

$L(v, 5, \lambda) = \{(x, 5) + \lambda \} (v, 5)$ $\frac{\partial L}{\partial v} = 2v + \lambda = 0$ $\frac{\partial L}{\partial v} = 2s + \lambda = 0$	
$\frac{12}{3\pi} = x - 5 - 1 = 0$ $\frac{1}{3\pi} = -2\sqrt{3} + 2\sqrt{3} = 23$	
$\begin{cases} 1/(x, 5) = 25 - 4 & 8 \le (x, 5) + 2x - 2 \\ 25 - 4 = 0 = 25 = 2 \\ 2x - 2 = 0 = 2x = 1 \\ 1/(x, 5) = 25 = 2 \\ 2x - 2 = 0 = 2x = 1 \\ 1/(x, 5) = 25 = 2 \\ 2/(x, 5) = 2x - 2 \\ 2/(x, 5) = 2x $	2
$L = \{(-3,0) = 2(-3)\} - 5(-9) - 25 = -65 + 12$ $\{(-3,0) = 12, (0) - 5x - 2(0) = -42$ $L_2 = \{(x,0) = 2x(0) - 5x - 2(0) = -4x$	
(1-3,0)=(2)(0,0)=0	

$L_3$	= { (1), -	-s) = e	p (-3x)	-4v-	21 -31	v] = -6	x ?		
	-6	<u>-0</u> = 2(-6)	0 1	10,-	3/011=	= 0			
	unhy P	\$1-3,-	3 (-3 1)	, 810	0,-310	111=	mm(1f	07=0	
ma	x (12,1	2,0)=	12 , 4	mpus (.	42,0,	0) =	-42		
=	nan 1	(Cx,5)=	= 12						
	may 6	(x,y) =	-42		44				
	1,5) 620					14	-	10 E	