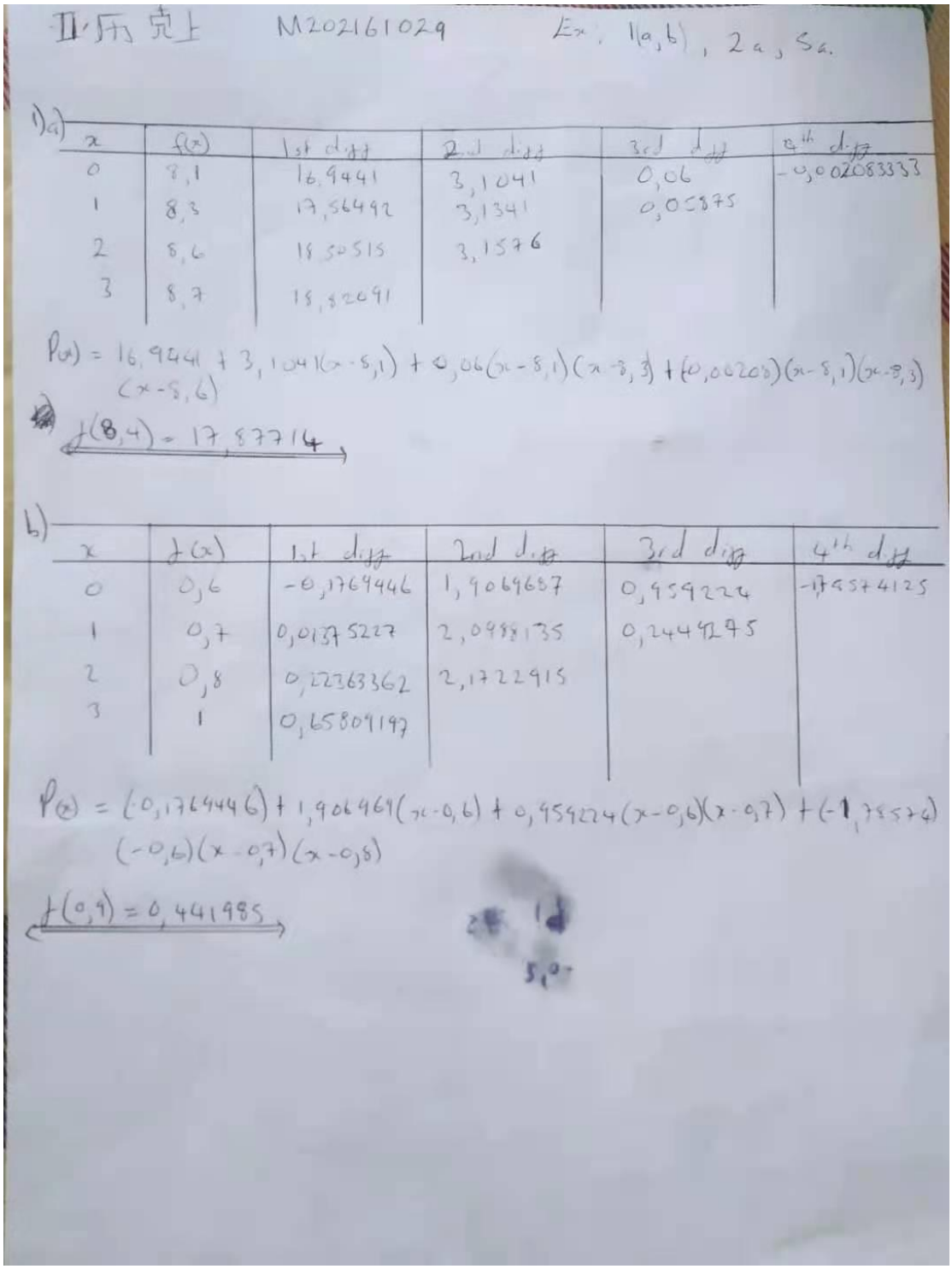
Alec Mabhiza Chirawu - 亚历克上

Numerical Analysis
Assignment 4



II. 历克上 M20216102G Ex: 1(a,b), 2a, 5a.

1)a)

x	f(x)	1st diff	2nd diff	3rd diff	4th diff
0	8,1	16,9441	3,1041	0,06	-0,00208333
1	8,3	17,56492	3,1341	0,05875	
2	8,6	18,50515	3,1576		
3	8,7	18,82091			

$P(x) = 16,9441 + 3,1041(x-8,1) + 0,06(x-8,1)(x-8,3) + (0,00208)(x-8,1)(x-8,3)(x-8,6)$

$f(8,4) = 17,87714$

b)

x	f(x)	1st diff	2nd diff	3rd diff	4th diff
0	0,6	-0,1769446	1,9069687	0,9594224	-1,7557+4125
1	0,7	0,0137 5227	2,0988135	0,2449295	
2	0,8	0,22363362	2,1722915		
3	1	0,65809197			

$P(x) = (0,1769446) + 1,906469(x-0,6) + 0,959224(x-0,6)(x-0,7) + (-1,7557+4)(-0,6)(x-0,7)(x-0,8)$

$f(0,9) = 0,441985$

2 a)

x	f(x)	1st diff	2nd diff	3.d diff	4th diff
0	-0,75	-0,0718125	0,18825	2,501	1
1	-0,5	-0,02475	1,43875	3,251	
2	-0,25	0,3349375	3,6425		
3	0	1,101			

$P(x) = -0,0718125 + 0,18825(x-(-0,75)) + 2,501(x-(-0,75))(x-(-0,5)) + 1(x-(-0,75))(x-(-0,5))(x-(-0,25))$

$f(-0,33333) = 0,174574$

5 a)

x	f(x)	1st diff	2nd	3.d	4th diff
0	0	1	1,107	0,61275	~~0,061474~~ 0,22625
1	0,2	1,2214	1,3521	0,7485	0,27583333
2	0,4	1,49182	1,6515	0,914	
3	0,6	1,82212	2,0171		
4	0,8	2,22554			

5th diff
0,061474

$P(x) = 1 + 1,107(x-0) + 0,61275(x-0)(x-0,2) + 0,22625(x-0)(x-0,2)(x-0,4) + 0,061474(x-0)(x-0,2)(x-0,4)(x-0,6)$

$f(x) = f(0,05)$

$f(0,05) = 1,051259$