

1. The Extrapolation Algorithm gives the results in the following tables.

(a)

i	t_i	w_i	h	k	y_i
1	0.25	0.04543132	0.25	3	0.04543123
2	0.50	0.28361684	0.25	3	0.28361652
3	0.75	1.05257634	0.25	4	1.05257615
4	1.00	3.21909944	0.25	4	3.21909932

(b)

i	t_i	w_i	h	k	y_i
1	2.25	1.44999987	0.25	3	1.45000000
2	2.50	1.83333321	0.25	3	1.83333333
3	2.75	2.17857133	0.25	3	2.17857143
4	3.00	2.49999993	0.25	3	2.50000000

(c)

i	t_i	w_i	h	k	y_i
1	1.25	2.77892942	0.25	3	2.77892944
2	1.50	3.60819763	0.25	3	3.60819766
3	1.75	4.47932759	0.25	3	4.47932763
4	2.00	5.38629431	0.25	3	5.38629436

(d)

i	t_i	w_i	h	k	y_i
1	0.25	1.32914981	0.25	3	1.32914981
2	0.50	1.73048976	0.25	3	1.73048976
3	0.75	2.04147203	0.25	3	2.04147203
4	1.00	2.11797954	0.25	3	2.11797955

2. The Extrapolation Algorithm gives the results in the following tables.

(a)

i	t_i	w_i	h_i	k	y_i
1	1.05	1.10385729	0.05	2	1.10385738
2	1.10	1.21588614	0.05	2	1.21588635
3	1.15	1.33683891	0.05	2	1.33683925
4	1.20	1.46756907	0.05	2	1.46756957

(b)

i	t_i	w_i	h_i	k	y_i
1	0.25	0.25228680	0.25	3	0.25228680
2	0.50	0.51588678	0.25	3	0.51588678
3	0.75	0.79594460	0.25	2	0.79594458
4	1.00	1.09181828	0.25	3	1.09181825

(c)

i	t_i	w_i	h_i	k	y_i
1	1.50	-1.50000055	0.50	5	-1.50000000
2	2.00	-1.33333435	0.50	3	-1.33333333
3	2.50	-1.25000074	0.50	3	-1.25000000
4	3.00	-1.20000090	0.50	2	-1.20000000

(d)

i	t_i	w_i	h_i	k	y_i
1	0.25	1.08708817	0.25	3	1.08708823
2	0.50	1.28980537	0.25	3	1.28980528
3	0.75	1.51349008	0.25	3	1.51348985
4	1.00	1.70187009	0.25	3	1.70187005

3. The Extrapolation Algorithm gives the results in the following tables.

(a)

i	t_i	w_i	h	k	y_i
1	1.50	1.06726237	0.50	4	1.06726235
2	2.00	1.18123223	0.50	3	1.18123222
3	2.50	1.30460372	0.50	3	1.30460371
4	3.00	1.42951608	0.50	3	1.42951607
5	3.50	1.55364771	0.50	3	1.55364770
6	4.00	1.67623915	0.50	3	1.67623914

(b)

i	t_i	w_i	h	k	y_i
1	1.50	0.64387537	0.50	4	0.64387533
2	2.00	1.66128182	0.50	5	1.66128176
3	2.50	3.25801550	0.50	5	3.25801536
4	3.00	5.87410027	0.50	5	5.87409998

(c)

i	t_i	w_i	h	k	y_i
1	0.50	-1.53788284	0.50	4	-1.53788284
2	1.00	-1.23840584	0.50	5	-1.23840584
3	1.50	-1.09485175	0.50	5	-1.09485175
4	2.00	-1.03597242	0.50	5	-1.03597242
5	2.50	-1.01338570	0.50	5	-1.01338570
6	3.00	-1.00494526	0.50	4	-1.00494525

(d)

i	t_i	w_i	h	k	y_i
1	0.50	0.29875177	0.50	4	0.29875178
2	1.00	0.21662642	0.50	4	0.21662642
3	1.50	0.12458565	0.50	4	0.12458565
4	2.00	0.05434552	0.50	4	0.05434551

4. The population after five years is $y(5) \approx 56,751$.