

Problem 5. (40 pts) Three alleles code for blood type. The number of people with each genotype has been determined:

AA	AB	BB	AO	BO	OO
3	6	33	12	23	55

a) Using this data, calculate the allelic frequencies for this population. (5 pts)

A	B	O

b) Determine the expected number of people in 100,000 that would have A, B, AB, and O blood type if the population was in HW equilibrium (10 pts)

A	B	AB	O

Table 5.3. Chi-square value

Degrees of Freedom	Probability						Non-significant		Significant	Highly significant
	0.95	0.90	0.80	0.70	0.50	0.30	0.20	0.10	0.05	0.01
1	0.004	0.02	0.06	0.15	0.46	1.07	1.64	2.71	3.84	6.64
2	0.10	0.21	0.45	0.71	1.39	2.41	3.22	4.60	5.99	9.21
3	0.35	0.58	1.01	1.42	2.37	3.66	4.64	6.25	7.82	11.34
4	0.71	1.06	1.65	2.20	3.36	4.88	5.99	7.78	9.49	13.28
5	1.14	1.61	2.34	3.00	4.35	6.06	7.29	9.24	11.07	15.09
6	1.63	2.20	3.07	3.83	5.35	7.23	8.56	10.64	12.59	16.81
7	2.17	2.83	3.82	4.67	6.35	8.38	9.80	12.02	14.07	18.48
8	2.73	3.49	4.59	5.53	7.34	9.52	11.03	13.36	15.51	20.09
9	3.32	4.17	5.38	6.39	8.34	10.66	12.24	14.68	16.92	21.67
10	3.94	4.86	6.18	7.27	9.34	11.78	13.44	15.99	18.31	23.21