

- 1) For the frequency dependent model of selection, plot the fitness of each genotype and the mean population fitness versus allele frequency when $s_1 = s_2 = 0.3$ and when $s_1 = 0.9$ and $s_2 = 0.1$. Describe what the difference in selection coefficients is doing.
- 2) For the pair-wise selection model, plot the fitness of each genotype and the mean population fitness versus allele frequency for the fitnesses in the tables below. Determine if any of these are similar to any other selection models that we have looked at by looking at the graphs and at the different pair-wise fitness values. Explain your reasoning.

a)

	AA	Aa	aa
AA	0.1	0.07	1.0
Aa	0.07	0.1	0.07
aa	1.0	0.07	0.1

b)

	AA	Aa	aa
AA	1.0	0.07	1.0
Aa	0.07	1.0	0.07
aa	1.0	0.07	1.0

c)

	AA	Aa	aa
AA	0.01	0.07	0.04
Aa	0.07	1.0	0.07
aa	0.02	0.08	0.01

- 3) Using a spatially varying model, construct a genotype by niche fitness table for the conditions below. In your answer, include a genotype by niche fitness table and any calculations used to determine if a protected polymorphism exists.
- a) there is a protected polymorphism with overdominance in no more than one niche.
- b) there is a protected polymorphism without overdominance in any niche.