

Answer Key to Recommended Problems:

1. 45%
2. a) 48% b) 2%
3. a) yes they are linked;  $\chi^2=9.36$ ,  $df=3$ ,  $P<0.05$  b) 35 map units
4. a) Parents were  $+++//+++$  and  $vs\ gl\ v//vs\ gl\ v$ ;  
b) F1 triple heterozygote was  $+++//vs\ gl\ v$   
c)  $vs\ gl\ v$   
d) 13.6% recombination between  $vs$  and  $gl$ ; 18.3% recombination between  $gl$  and  $v$   
e)  $I = 0.39$ ; DCO is reduced 39% below what it would be if crossing over in the two regions were independent
5. a) sequence:  $a-c-b-d$  b)  $a-c$  4.3 mu;  $c-b$  22.4 mu;  $b-d$  14.1 mu
6. a) Selection, mutation, genetic drift, non-random mating, migration; b) selection causes adaptive evolution, all other process can potentially cause non-adaptive evolution.)
7. a) 1.0; b) 0.0; c) 0.40; d) it is in H-W:  $\chi^2=0.28$ ,  $df=2$ ,  $P>0.50$
8. heterozygote advantage, frequency-dependent selection, selection that varies in space or time
8. (there were two questions 8's) a) genetic drift; b) inbreeding
9. 0.01; b) you don't need to be able to do this kind of question for this class, since we did not cover this material in class (although it is covered in your lecture notes)
10. 0.001
11. a) hind leg length; b) 151 cm