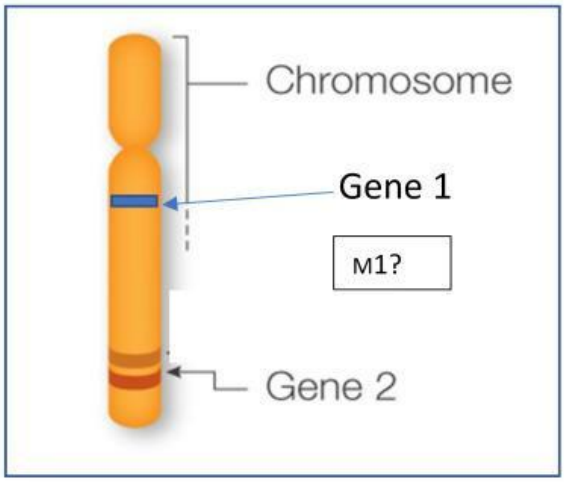
1. Consider two loci A and B on the same chromosome with a recombination fraction of 0.24. You observe that DAB = 0.2. How many generations of random mating do you expect before DAB is reduced to 0.02?

   T= ln (/)/ln (1-) =

2. Consider two loci A and B on the same chromosome with a recombination fraction of 0.05. You observe that DAB = 0.2. How many generations of random mating do you expect before DAB is reduced to 0.02?

   T= ln (/)/ln (1-) =

3. From questions 1) and 2) above, the higher the recombination fraction, the more generations of random mating is needed to reduce the linkage disequilibrium.

4. 

   Where is Marker 1?

   In a hypothetical animal population, 100 family pairs are genotyped to see how many pairs have Marker 1 as well as Gene 1 and Gene 2, respectively. The data is as follows.

   Fill in the blanks in the table, and determine the LOD scores by finding the natural logs of the odds ratio given.

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	Appears together with M1	Not together with M1	Possible explanation	Odds ratio	Lod score
Gene1	10	90		10	
Gene2	60	40		36000	

Which gene is M1 closer to?

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