**Recombination Frequency and Gene Mapping Warm-up**

1. Genes A, B, and C are located on the same chromosome. Testcrosses show that the recombination frequency between A and B is 28% and between A and C is 12%. What is the linear order of these genes?
2. A wild‐type fruit fly that is heterozygous for normal wings and grey body color is mated with a fly that has vestigial wings and black body color. The offspring have the following phenotypic distribution: 778 that are wild type, 785 that are black body‐vestigial wings, 158 that are black body, normal wings, and 162 that are grey body‐vestigial wings. What is the recombination frequency between the wing size and body color genes?
3. Determine the sequence of genes based on the following recombination frequencies:

A‐B = 8 map units

A‐C = 28 map units

A‐D = 25 map units

B‐C = 20 map units

B‐D = 33 map units