

1) This data is from Bridges and Morgan's work on recombination between the genes black, curved, purple, speck, and vestigial on chromosome 2 of *Drosophila*. On the basis of this data, map the chromosomes as **accurately** as possible.

<u>Genes in cross</u>	<u>total progeny</u>	<u>recombinant progeny</u>
black, curved	62,679	14,237
black, purple	48,931	3,026
black, speck	685	326
black, vestigial	20,153	3,578
curved, purple	51,136	10,205
curved, speck	10,042	3,037
curved, vestigial	1,720	141
purple, speck	11,985	5,474
purple, vestigial	13,601	1,609
speck, vestigial	2,054	738

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Use the line above for your final map. **SHOW YOUR CALCULATIONS**

2. In corn, a dihybrid for the recessive genes a and b is test-crossed. The distribution of the phenotypes is as follows:

A	B	82
a	b	79
A	b	121
a	B	118

a) do the genes appear to be sorting independently?

b) Test your hypothesis with a chi-squared test.

3. Here are the results of a three point test cross in *Drosophila*.

a) What were the genotypes of the original true breeding strains.

b) calculate distances and draw a map showing the most accurate map units.

cn	c	px	10
+	+	+	15
cn	c	+	63
+	+	px	72
cn	+	px	296
+	c	+	329
cn	+	+	119
+	c	px	96