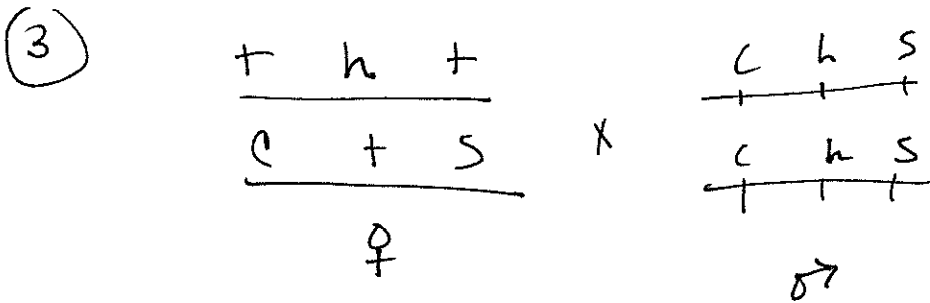
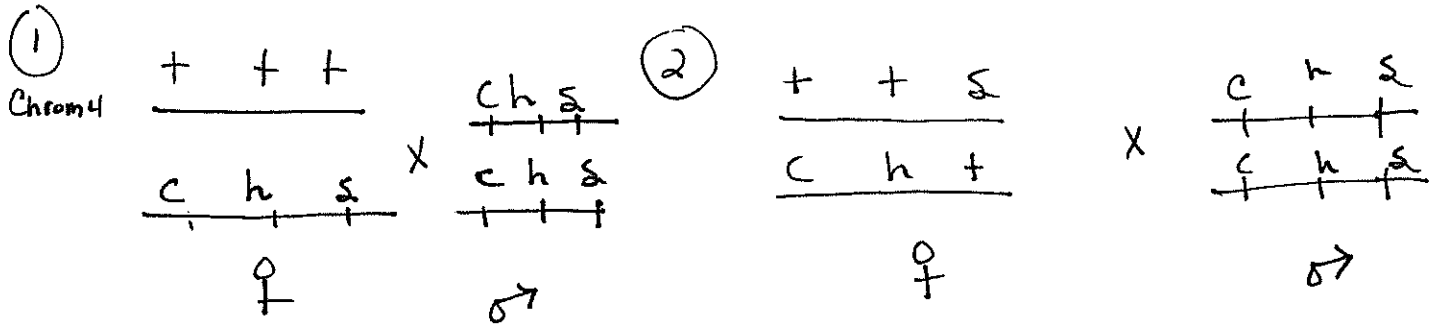


Key - Linkage Prob set 2010

4/2010

- (1a) c = recessive allele for curly wing
 s = recessive allele for short antenna
 h = " " " hourglass eyes



* other possible allele organizations for ♀

* * Order randomly chosen for answer
 could be $c \quad h \quad s$
 $h \quad c \quad s$
 $c \quad s \quad h$

1b

+ h +

and

c + S

most common
= NCO

+ + +

and

c h S

Least common
= DCO

→ Parental combo:

Cross =

+ h +
c + S

x

c h S
c h S

♀

♂



DCO

+ h +

c + S



+ + +
c h S

h is in
middle
according to
this data

2.

A. distance $q-z = 31 \text{ cM} + 22 \text{ cM} = 53 \text{ cM}$

$\cdot 53 \times 1000 = 530$ recomb. offspring

B. You expect fewer. Recombination frequencies approach but never exceed 50%. Because only half of the offspring recovered after crossover inhibit recombination (only 2 of the 4 chromatids involved), even when X.O. occurs 100% of the time between 2 distant loci, we only observe 50% recomb.

Also
* Double crossovers give misleading variable #s of recomb offspring, depending on how many chromatids are involved.

C. You expect $.31 \times .22 \times 1000 = 68.2$

You are observing interference.

Coefficient of coincidence = $\frac{\text{Observed DCO}}{\text{expected DCO}} = .645$

Interference = $1 - C = \boxed{.3548}$

$I = .355$