Calculation of distance between 2 genes based on progeny from dihybrid test cross :

P AB/AB × ab/ab

↓

F1 AB/ab

Test cross F1 AB/ab × ab/ab

F2

2/6 AB/ab

1/6 AB/ab

1/6 aB/ab

2/6 ab/ab

How far apart are A and B ?

1. Who are parental phenotypes? (LARGEST CLASSES) = AB/ab & ab/ab
2. Who are recombinant phenotypes? (SMALLEST CLASSES) = Ab/ab & aB/ab
3. # map units. = $100\% \left[\frac{\text{\# of recomb. progeny}}{\text{\# of total progeny}} \right] = 100\% \left[\frac{1+1}{6} \right] = 33 \text{ M.U.}$

* freq. of recombinant class *