

TABLE 9.3. Summary of the results obtained from a three point test cross between $ABC/abc \times abc/abc$

<i>Genotypic classes</i>	<i>Phenotypic classes</i>	<i>Assumed frequencies</i>	<i>Remarks</i>
ABC/abc	ABC	349	} Parental types.
abc/abc	abc	360	
Abc/abc	Abc	114	} Single crossover between A and B.
aBC/abc	aBC	116	
ABc/abc	ABc	128	} Single crossover between B and C.
abC/abc	abC	124	
AbC/abc	AbC	5	} Double crossover between A and C.
aBc/abc	aBc	4	
Total		1200	

2. Recombination (%) of Three point Test Cross:

Crossing over percentage between genes A and B = $(114+116)+(5+4)/1200 \times 100 = 230 + 9/1200 \times 100 = 19.92\%$

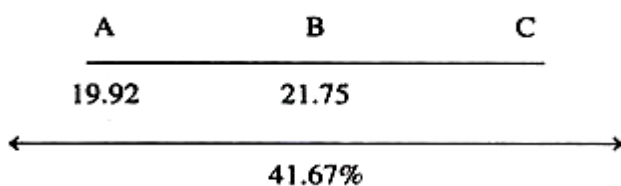
Crossing over percentage between genes B and C = $(128 + 124)+ (5 + 4)/1200 \times 100 = 252 + 9/1200 \times 100 = 21.75\%$

3. Gene Sequence of Three Point Test Cross:

Hence, distance between genes A & B = 19.92 map units

Distance between genes B& C= 21.75 map units

Distance between genes A & C= $21.75 + 19.92 = 41.67$ map units



4. Coefficient of Coincidence in Three point Test Cross:

Coefficient of coincidence =

Observed no. of double crossovers/Expected no. of double crossovers

1. Observed double crossovers = $9/1200 \times 100 = 0.75$

2. Expected double crossovers = Product of two single crossovers between AB & BC values/100

= $19.92 \times 21.75/100 = 4.33$

Coefficient of coincidence = $0.75/4.33 = 0.17$

Coefficient of interference = $1 - \text{Coefficient of coincidence} = 1 - 0.17 = 0.83$

