

chi square:

\* It is a method used to check how efficient are 2 sets of data.

$$\chi^2 = \frac{\sum (O - E)^2}{E}$$

O = observed data

E = Expected data

eg:

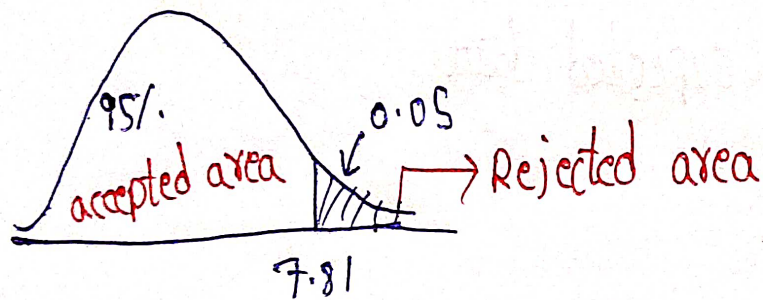
	Expected	observed	$(O - E)^2$	$(O - E)^2/E$
n=4	125	150	625	5
	125	200	5625	45
	125	100	625	5
	125	50	5625	45
				<hr/> 100

$\alpha = 0.05$  (given)



$$\begin{aligned}\text{degree of freedom} &= n - 1 \\ &= 4 - 1 \\ &= 3\end{aligned}$$

For dof 3,  $\alpha = 0.05$ , From chi square table,  
critical value = 7.81



As we got chi square value we got is  
greater than 7.81 i.e,  $100 > 7.81$ ,

we can consider Expected data is significantly  
different from observed data.

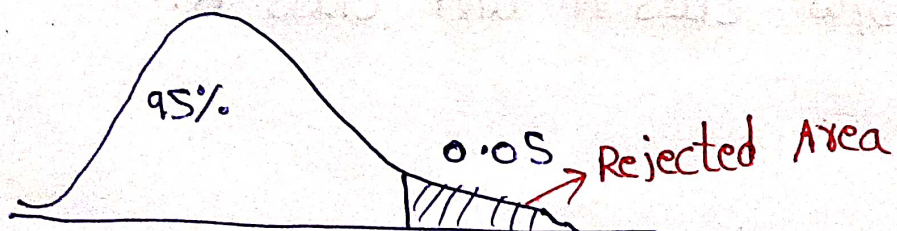
## F Test :

\* It is used to find the comparison of variances of two data sets

$$F = \frac{\sigma(d1)^2}{\sigma(d2)^2}$$

eg :

class	size	variance	$\alpha = 0.05$
A	20	2.5	
B	20	1.8	





degree of freedoms:

$$df_1 = n - 1 = 20 - 1 = 19$$

$$df_2 = n - 1 = 20 - 1 = 19$$

At  $\alpha = 0.05$  and  $df_1 = 19$ ,  $df_2 = 19$ , From F-Test table, critical value is 2.20

$$F = \frac{2.5}{1.8} \Rightarrow \boxed{1.39}$$

$\therefore$  AS F value (1.39) < critical value (2.20)

we can say there is no significant difference. b/w class A and class B.