Chi-Squared Testing

An analyst wanted to see if consumers have any preference of five flavors of a new soda.

$\frac{100}{5}$ $\sum \frac{(O-E)^2}{E}$ $E=20$

Cherry	32
Strawberry	28
Orange	16
Lime	14
Grape	10

$\frac{(32-20)^2}{20} = \frac{12^2}{20} = \frac{144}{20} = 7.2$

$\frac{(28-20)^2}{20} = \frac{8^2}{20} = \frac{64}{20} = 3.2$

$\frac{(16-20)^2}{20} = \frac{(-4)^2}{20} = \frac{16}{20} = .8$

$\frac{(14-20)^2}{20} = \frac{(-6)^2}{20} = \frac{36}{20} = 1.8$

$\frac{(10-20)^2}{20} = \frac{(-10)^2}{20} = \frac{100}{20} = 5$

$\chi^2 = 18$

1. State the hypotheses. H_0: Variation is caused by chance
   H_A: there is variation

2. Compute $\chi^2 = \sum \frac{(O-E)^2}{E}$ O = observed, E = expected

   $= 18$

3. Compare this value to the value in the table on p.234.

   $n=5$ 9.488 Reject H_0.

4. State your conclusion. If calc. value > table value, reject H_0
   If calc. value < table value, do not reject H_0