```
> x = c("13.20 - 20.90", "20.90 - 28.60", "28.60 - 36.30", "36.30 - 44.00", "44.00 - 51.70", "51.
70 - 59.40", "59.40 - 67.10", "67.10 - 74.80", "74.80 - 82.50", "82.50 - 90.20")
> x #class limits
 [1] "13.20 - 20.90" "20.90 - 28.60" "28.60 - 36.30" "36.30 - 44.00"
 [5] "44.00 - 51.70" "51.70 - 59.40" "59.40 - 67.10" "67.10 - 74.80"
 [9] "74.80 - 82.50" "82.50 - 90.20"
> ci = c((13.20 + 20.90) / 2, (20.90 + 28.60) / 2, (28.60 + 36.30) / 2, (36.30 + 44.00) / 2, (44.
00 + 51.70) / 2, (51.70 + 59.40) / 2, (59.40 + 67.10) / 2, (67.10 + 74.80) / 2, (74.80 + 82.50) /
 2, (82.50 + 90.20) / 2)
> ci #class interval
 [1] 17.05 24.75 32.45 40.15 47.85 55.55 63.25 70.95 78.65 86.35
> f = c(2, 10, 16, 37, 43, 39, 29, 13, 6, 5)
> N = sum(f) #total number of observations
> n = max(ci) #maximum value of the range
> s.mean = sum(f * ci) / N #sample mean
> s.var = sum(f * (ci - s.mean) ^ 2) / (N - 1) #sample variance
> Px = c() #probability of each class
> Px[1] = pnorm(ci[1], s.mean, sqrt(s.var)) #probability of the first class
> Px[2:length(ci)] = pnorm(ci[2:length(ci)], s.mean, sqrt(s.var)) - pnorm(ci[1:(length(ci) - 1)],
 s.mean, sqrt(s.var)) #probability of the remaining classes
> ef = N * Px #expected frequency
> ef
 [1]  1.802190  4.976733 13.008114 25.605913 37.964653 42.400010 35.670529
 [8] 22.604508 10.789048  3.878034
> A = data.frame(x, ci, f, ef) #data frame
> A;
               x    ci  f        ef
1  13.20 - 20.90 17.05  2  1.802190
2  20.90 - 28.60 24.75 10  4.976733
3  28.60 - 36.30 32.45 16 13.008114
4  36.30 - 44.00 40.15 37 25.605913
5  44.00 - 51.70 47.85 43 37.964653
6  51.70 - 59.40 55.55 39 42.400010
7  59.40 - 67.10 63.25 29 35.670529
8  67.10 - 74.80 70.95 13 22.604508
9  74.80 - 82.50 78.65  6 10.789048
10 82.50 - 90.20 86.35  5  3.878034
> plot(f, ef, xlab = "observed", ylab = "expected", type = "p") #plot
> abline(0, 1) #plotting the line y = x
> ci1 = ci[2:9];
> #class interval of the first 9 classes
> x1 = x[2:9];
> #class limits of the first 9 classes
> f1 = c(sum(f[1:2]), f[3:8], sum(f[9:10]));
> #frequency of the first 9 classes
> ef1 = c(sum(ef[1:2]), ef[3:8], sum(ef[9:10]));
> #expected frequency of the first 9 classes
> oes = ((f1 - ef1) ^ 2) / ef1 #observed minus expected squared divided by expected
> cch = sum(oes);
> qch = qchisq(1 - 0.05, length(oes) - 1 - 2) #critical chi square value
> cch
[1] 16.96515
> qch
[1] 11.0705
> if (qch > cch) {
+   #comparing the chi square values
+   g = c("Hypothesis is correct")
+   print(g)
+ }
> if (cch > qch) {
+   g = c("Hypothesis is incorrect")
+   print(g)
+ }
[1] "Hypothesis is incorrect"
> g
[1] "Hypothesis is incorrect"
>
```