Here are the assigned problems from the textbook. Please complete all calculations by hand (using a calculator for arithmetic only) except where the use of R is suggested.

Chapter 10:

For each test requested in the following problems please provide:
(a) the null and alternative hypothesis in symbols
(b) the test statistic
(c) the df for the test
(d) a bracket for the p-value (a < p-value < b)
(e) a statement of whether you reject, or fail to reject, the null hypothesis.

1. problem 10.10, page 401
2. problem 10.4, page 400
3. problem 10.24, page 411 except use a non-directional alternative.
4. problem 10.52, page 434.
5. problem 10.47, page 432.
   You may do part (b) by hand or use R to help in the calculations. Here are some R commands for part (b). Commands that start with “##” are comments and need not be typed in.

   ## put the data in a matrix called observed
   total.observed = c(1488,2070,5323,2698)
   yes.observed = c(323,381,1320,712)
   no.observed = total.observed-yes.observed
   observed = matrix(c(yes.observed,no.observed),nrow = 4,ncol = 2)

   ## Use the function chisq.test to calculate the chi-squared statistic
   chi.out = chisq.test(observed)
   print("chi.out")
   print(chi.out)

   ## we can extract the expected matrix from the test result
   expected = chi.out$expected
   print("expected")
   print(expected)

   ## and we can check the Chi-squared statistic using the following formula
   print("chi-squared statistic")
   print(sum((observed-expected)^2/expected))

6. problem 10.62, page 441