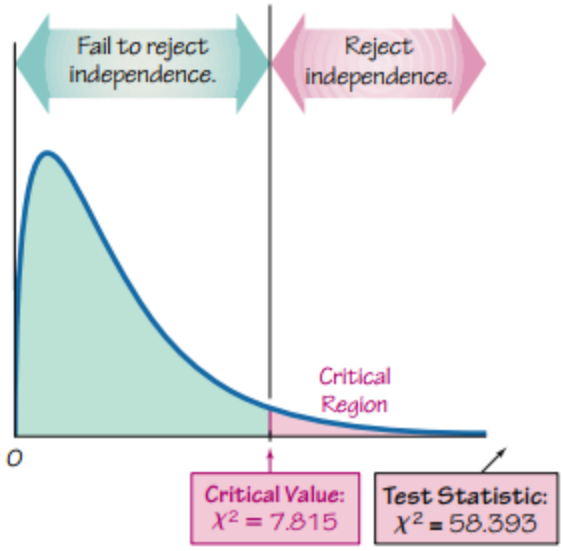


**Figure 11-4**

## Interpretation

It appears that success is dependent on the treatment. Although the results of this test do not tell us which treatment is best, we can see that the success rates of 81.8%, 44.6%, 95.9%, and 77.3% suggest that the best treatment is to use a non-weight-bearing cast for 6 weeks. These results suggest that the increasing use of surgery is a treatment strategy that is not supported by the evidence.

## Example 4 Are Four Quarters the Same as One Dollar?

Table 11-1 provided with the Chapter Problem consists of a contingency table with a row variable (whether subject was given four quarters or a one-dollar bill) and a column variable (whether the subject purchased gum or kept the money). Use a 0.05 significance level to test the claim that the row variable is independent of the column variable. What do the results of the test tell us? The table is shown below with results from a TI-83/84 Plus calculator.

**Table 11-1** Results from a Study of the Denomination Effect

| | Purchased Gum | Kept the Money |
|---|---|---|
| Students Given Four Quarters | 27 | 16 |
| Students Given a $1 Bill | 12 | 34 |

**TI-83/84 PLUS**

```
χ²-Test
 χ²=12.1619258
 p=4.877499E-4
 df=1
```

## Solution

**Requirement check** (1) The data in Table 11-1 are from 89 undergraduate business students who were assigned at random to one of two groups. We will treat the data as being random. (2) The sample data are represented as frequency counts in a two-way table. (3) Each expected frequency is at least 5. (The expected frequencies are 18.843, 24.157, 20.157, and 25.843.) The requirements are satisfied. ✔