```
                   -0.12795256                  -0.21009588                  -0.22876753
       concave.points_worst          symmetry_worst fractal_dimension_worst
                   -0.25088597                  -0.12290456                  -0.13178394
```

Q10. What is the minimum number of principal components required to explain 80% of the variance of the data?

3. Hierarchical clustering

```r
# Scale the wisc.data data using the "scale()" function
data.scaled <- scale(wisc.data)
```

```r
data.dist <- dist(data.scaled)
data.dist
```

```
                 842302     842517   84300903   84348301   84358402     843786     844359
842517       10.309426
84300903      6.771675   5.027592
84348301     10.463467  16.236452  12.833428
84358402      8.663413   4.375039   4.458306  15.361783
843786        8.402233   8.636180   6.885051   9.362930   8.235620
844359        9.843286   2.533798   4.431417  15.019438   4.920386   7.065364
84458202      8.929482   7.055800   5.997905  11.325629   6.939961   3.582305   5.780860
844981        8.460437   8.745629   6.302019   9.329609   8.685962   2.692775   6.876446
84501001     11.183061  14.190212  11.656882   8.472046  13.897607   8.271826  12.868519
845636       12.748000   4.713225   7.517024  16.371218   7.394356   8.415097   3.980423
```