**Question 6**

What is the total-within-sum-of-squares value for the 8 cluster scenario when using kmeans()? (minimum 3 decimal places)

**kWSS**

[1] 4196.0000 1538.0508 948.9420 790.5194 715.8719 545.8815 492.8262 458.7790 414.2217

[10] 390.7818

### Question 7

What is the reduction in the total-within-sum-of-squares from the scenario of 9 clusters to the next greatest number of clusters scenario when using kmeans()? (minimum 3 decimal places)

**( d1HC <- kWSS[1:(maxClust-1)] - kWSS[2:maxClust] )**

[1] 2657.94920 589.10876 158.42259 74.64759 169.99032 53.05540 34.04716 44.55730

[9] 23.43986

### Question 8

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  | | | | |
|  | What is the total-within-sum-of-squares value for the 5 cluster scenario when using hclust()? (minimum 3 decimal places) | |  |  |  |
|  |  |  |  |  |

**hWSS**

[1] 4196.0000 2999.6469 1052.9296 856.2326 746.8379 712.7530 645.7044 603.2762 571.1381

[10] 565.3146

### Question 9

What is the reduction in the total-within-sum-of-squares from the scenario of 7 clusters to the next greatest number of clusters scenario when using hclust()? (minimum 3 decimal places)

**( d1HC <- hWSS[1:(maxClust-1)] - hWSS[2:maxClust] )**

[1] 1196.353093 1946.717303 196.697040 109.394618 34.084988 67.048589 42.428202 32.138104

[9] 5.823495

### Question 10

What is the scaled reduction in the total-within-sum-of-squares from the scenario of 8 clusters to the next greatest number of clusters scenario when using hclust()? (minimum 3 decimal places)

**d1HCs <- d1HC/max(d1HC) )** ----***Scaled reduction***

[1] 0.614548960 1.000000000 0.101040372 0.056194404 0.017508956 0.034441872 0.021794742 0.016508871

[9] 0.002991443