Assignment 16.2 : Problem Statement

Find the variance for the following set of data representing trees in California (heights in feet):

3, 21, 98, 203, 17, 9

Step 1:

Add up the numbers in your given data set.

3 + 21 + 98 + 203 + 17 + 9 = 351

Step 2:

Square your answer:

351 × 351 = 123,201

…and divide by the number of items. We have 6 items in our example so:

123,201 / 6 = 20,533.5

Step 3:

Take your set of original numbers from Step 1, and square them individually this time:

3 × 3 + 21 × 21 + 98 × 98 + 203 × 203 + 17 × 17 + 9 × 9

Add these numbers (the squares) together:

= 9 + 441 + 9604 + 41209 + 289 + 81 = 51,633

Step 4:

Subtract the amount in Step 2 from the amount in Step 3.

51,633 – 20,533.5 = 31,099.5

Step 5:

Subtract 1 from the number of items in your data set . For our example:

6 – 1 = 5

Step 6:

Divide the number in Step 4 by the number in Step 5.

This gives the variance:

31,099.5 / 5 = **6,219.9**

The Variance is = 6219.9

Step 7:

Take the square root of your answer from Step 6. This gives you the standard deviation:

$\sqrt{}$ 6,219.9 = 78.86634

The Standard Deviation is = 78.86634