Assignment_15.11438 - Statistics 1

Problem 1:

You survey households in your area to find the average rent they are paying. Find the standard deviation from the following data:

$1550, $1700, $900, $850, $1000, $950.

Ans:

Sum = 1550 + 1700 + 900 + 850 + 1000 + 950 = $6950

Mean = 6950/6 = 1158

Variance = (1550 – 1158) ** 2 + (1700 -1158)**2 +(900-1158)**2 + (850-1158)**2 +

(1000-1158)**2+(950-1158)**2/6

= 153664 + 293764+66564+94864+24964+43264/6 = 112847

Standard Deviation = square root of(112847) = $ 335.927

Problem 2:

Find the variance for the following set of data representing trees in California (heights in feet):
3, 21, 98, 203, 17, 9

Ans:

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

Mean = 351/6 = 58.5

Variance = (3 – 58.5) ** 2 + (21 -58.5) ** 2 +(98-58.5) ** 2 + (203-58.5) ** 2 +

(17-58.5) ** 2 + (9 - 58.5) ** 2/6

= 3080.25 + 1406.25 + 1560.25 + 20880.25 + 1722.25 + 2450.25/6

= 5183.25

Problem 3:

In a class on 100 students, 80 students passed in all subjects, 10 failed in one subject, 7 failed in two subjects and 3 failed in three subjects. Find the probability distribution of the variable for number of subjects a student from the given class has failed in

Ans :

For a random student,

The probability of failing in 0 subjects , $P(X=0) = 80/100 = 0.8$

The probability of failing in 1 subjects , $P(X=1) = 10/100 = 0.1$

The probability of failing in 2 subjects , $P(X=2) = 7/100 = 0.07$

The probability of failing in 3 subjects , $P(X=3) = 3/100 = 0.03$