MENORAH

16.1 Average Rents = $1550, $1700, $900, $850, $1000, $950 = X

$\bar{X} = \frac{\$1550 + \$1700 + \$900 + \$850 + \$1000 + \$950}{6}$

$= \frac{\$6950}{6}$

$= 1158.33$

Standard Deviation $= \sqrt{\frac{\Sigma(X - \bar{X})^2}{N-1}}$

$N = 6$

$SD = \frac{\sqrt{(1550-1158.33)^2 + (1700-1158.33)^2 + (900-1158.33)^2 + (850-1158.33)^2 + (1000-1158.33)^2 + (950-1158.33)^2}}{\sqrt{6-1}}$

$= \frac{\sqrt{(391.67)^2 + (541.67)^2 + (-258.33)^2 + (-308.33)^2 + (158.33)^2 + (208.33)^2}}{\sqrt{5}}$

$= \sqrt{\frac{153405.3889 + 293406.38 + 66734.38 + 95067.38 + 25068.38 + 43401.38}{5}}$

$= \sqrt{135416.66} = 367.99$

MENDRAH

16.2 Height in feet for trees = 3, 21, 98, 203, 17, 9

$N = 6$

$\bar{x} = (3+21+98+203+17+9)/6$

$= 351/6 = 58.5$

$\text{variance} = \sigma^2 = \frac{\Sigma(x-\bar{x})^2}{n-1}$

$= \frac{(3-58.5)^2 + (21-58.5)^2 + (98-58.5)^2 + (203-58.5)^2 + (17-58.5)^2 + (9-58.5)^2}{6-1}$

$= \frac{(-55.5)^2 + (-37.5)^2 + (39.5)^2 + (144.5)^2 + (-41.5)^2 + (-49.5)^2}{5}$

$= \frac{3080.25 + 1406.25 + 1560.25 + 20880.25 + 1722.25 + 2450.25}{5}$

$= \frac{31099.5}{5}$

$\sigma^2 (\text{variance}) = 6219.9$

16.3 Total students = 100
passed in all = 80
Failed in one = 10
Failed in two = 7
Failed in three = 3

probability of failing in 0 subjects, $p(x=0) = 0.8$
probability of failing in 1 subject, $p(x=1) = 0.1$
probability of failing in 2 subjects, $p(x=2) = 0.07$
probability of failing in 3 subjects, $p(x=3) = 0.03$

p distribution can be shown as

X	0	1	2	3
p(x)	0.8	0.1	0.07	0.03