MATH 110 – QUIZ 13 – 4 DECEMBER 2009

Answer all of the following questions in the space provided.

1. The scores on a quiz in a certain math class are given below. Note that there are a total of 25 scores.

7, 8, 9, 6, 6, 10, 7, 10, 6, 7, 7, 9, 8, 7, 10, 8, 10, 7, 7, 8, 8, 9, 7, 7, 7

(a) (2 pts.) Write down a table giving the relative frequency of each value of the above data.

score	rel. freq.
6	3/25 = .12
7	10/25 = .40
8	5/25 = .20
9	3/25 = .12
10	4/25 = .16

(b) (3 pts.) Find the mean μ, variance σ^2, and standard deviation σ for the above data.

$\mu = 6(.12)+7(.40)+8(.20)+9(.12)+10(.16) = 7.8$ //

$\sigma^2 = (6-7.8)^2(.12)+(7-7.8)^2(.40)+(8-7.8)^2(.20)$
$+(9-7.8)^2(.12)+(10-7.8)^2(.16) = 1.6$ //

$\sigma = \sqrt{1.6} \approx 1.26$ //

2. (5 pts.) Find the expected value $E(X)$, variance $Var(X)$, and standard deviation $\sigma = \sqrt{Var(x)}$ for the random variable X given by

k	$Pr(X = k)$
0	.15
1	.2
2	.1
3	.25
4	.3

$E(X) = (0)(.15)+(1)(.2)+(2)(.1)+3(.25)+4(.3)$

$= 2.35$ //

$Var(X) = (0-2.35)^2(.15)+(1-2.35)^2(.2)$
$+(2-2.35)^2(.1)+(3-2.35)^2(.25)$
$+(4-2.35)^2(.3) = 2.1275$ //

$\sigma = \sqrt{Var(X)} = \sqrt{2.1275} \approx 1.46$ //