

**STATISTICS 301,  
Practice Problems**

**Johnson**

1. Measurements on the number of accidents per month, for five months, yielded the observations

8 4 6 2 5

- (a) Find the sample mean.  
 (b) Find the sample variance.  
 (c) Find the sample standard deviation.
2. Twenty measurements of the inside diameters of tubes are given in the stem and leaf diagram where 52 appears as 5|2 and so on.

4|5678  
 5|0122344569  
 6|000123

- (a) Add the new observation 49 to the stem and leaf diagram.  
 (b) Using all 21 observations, determine the quartiles.  
 (c) Make a box plot.
3. Data on the time in seconds, for a computer to respond, has been grouped in the following frequency table

Interval*	Frequency	Relative Frequency
(0,1]	48	.24
(1,2]	60	.30
(2,4]	92	.46
Total	200	1.00

\*right endpoint included but not left endpoint.

- (a) Make a histogram.  
 (b) What proportion of the observations are greater than 2?
4. Let  $P(A \text{ or } B) = .7$ ,  $P(A) = .4$  and  $P(B) = .5$ .
- (a) Find the conditional probability of  $A$  given  $B$ .  
 (b) Are  $A$  and  $B$  independent? Explain why or why not.  
 (c) Find the probability of  $\overline{A \cap B}$ .
5. Ten persons apply for a job but 3 can do the job without receiving extensive training. Three persons will be selected.
- (a) Find the number of selections where exactly 1 can do the job without extensive training.  
 (b) If the three persons are selected at random, what is the probability of getting exactly one who can do the job?
6. If the probability of running out of gas is .03 and the probability the electronic starting system will not work is .01, what is the probability that there will be enough gas and that the starting system will work? ( assume two are independent. -when may this be a poor assumption?)

7. You are given the following probability distribution for a random variable  $X$ .

value	Probability
0	.1
1	.2
2	.3
3	.4

- (a) Find the probability that  $X$  is greater than 1.
- (a) Find the population mean.
- (c) Find the population variance.
- (d) Find the population standard deviation.

7. A basketball player makes 70

- (a) Find the probability that she will exactly 3 of the next 5 tries.
- (b) Find the expected number of free throws she will make in the next 5 tries.
- (c) What distribution may be appropriate for the number of free throws she will make in 5 trials? in 10 trials?