Stat 6001 : Even Problems

HW #1

1.4 - plot bar graphs of defective versus non-defective parts produced - descriptive statistic
- test whether the proportion of defectives is acceptable - inferential statistics

2.2 make histogram, check if outliers exist.

2.38 almost equal proportion in each category, most in Family Practice, least in General Practice.

HW #2

3.8 compute the descriptive statistics, if the distribution is symmetric use the sample mean as the measure of center, if the distribution is skewed use the sample median as the measure of center.

3.18 Compute $\bar{x}_1, s_1$ and $\bar{x}_2, s_2$ then compute CV_1 and CV_2 to compare the variability between groups.

3.20 Compute the descriptive statistics for the dataset using Minitab Statistics > Descriptive Statistics > Descriptive Statistics.

$$z = \frac{x - \cancel{\mu}}{\cancel{\sigma}}$$

3.40 make a boxplot comment.

3.50 a) make a histogram, is the distribution skewed if so use median, if symmetric use mean.

b) compute range IQR

c). s^2, s.

d.) Texaco $z = \frac{x - \bar{x}}{s}$

ExonMobil $z = \frac{x - \bar{x}}{s}$.

e.) compute skewness

4.10 a.) $P(A \cup F) = .13 + .28 - .03 =$

b) $P(E \cup B) = .72 + .16 - .04$

c) $P(B \cup C) = .16 + .33$

d) $P(E \cup F) = .72 + .28 = 1$

HW#3

4.2 a) $X \cup Z = \{1, 3, 7\}$.

b) $X \cap Y = \{.7, 9\}$.

c) $X \cap Z = \{1, 3, 7\}$.

d) $X \cup Y \cup Z = \{1, 2, 3, 4, 5, 7, 8, 9\}$

e) $X \cap Y \cap Z = \{7\}$

f) $(X \cup Y) \cap Z = \{1, 2, 3, 4, 5, 7, 8, 9\} \cap Z$

$= \{1, 2, 3, 4, 7\} = Z$.

g) $(Y \cap Z) \cup (X \cap Y) = \{2, 4, 7\} \cup \{2, 7, 9\}$.

$= \{2, 4, 7, 9\}$.

h) $X \text{ or } Y = X \cup Y = \{1, 2, 3, 4, 5, 7, 8, 9\}$.

i) $Y \text{ and } X = Y \cap X = \{.2, 7, 9\}$.

4.6. 10^7

4.12 $P(L) = .75$ $P(M) = .78$ $P(L \cap M) = .61$

a) $P(M \text{ or } L) = P(M \cup L) = P(M) + P(L) - P(M \cap L)$

$= .78 + .75 - .61 =$

b) $P(M \text{ or } L, \text{ no both}) =$

$= P(M) - P(M \cap L) + P(L) - P(M \cap L)$

$= .78 - .61 + .75 - .61 =$

c) $P(\overline{M \cup L}) = 1 - P(M \cup L)$

$= 1 -$

4.16 a) $P(E \cap B) = .09$

b) $P(C \cap F) = .06$

c) $P(E \cap D) = 0$

4.22 $P(F) = .6$ $P(G) = .29$ $P(F \cap G) = .13$

a) $P(F \cup G) = P(F) + P(G) - P(F \cap G)$

$= .6 + .29 - .13 =$

b) $P(\overline{F \cup G}) = 1 - P(F \cup G)$

$= 1 - \quad =$

c) $P(\bar{F} \cap G) = P(G) - P(F \cap G)$

$= .29 - .13 =$

d) $P(F \cap \bar{G}) = P(F) - P(F \cap G)$

$= .6 - .13 =$

HW#4

5.20 $\lambda = 5.6$. X = # days exceed standards per 3-week

$X \sim Poi(\lambda)$

a) $P(X=0)$

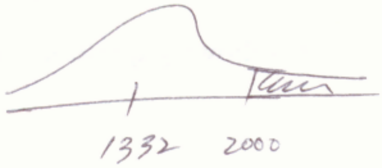
b) $P(X=6)$

c) $P(X \geq 15)$ very, very bad day

6.10 X = amount of tax refund.

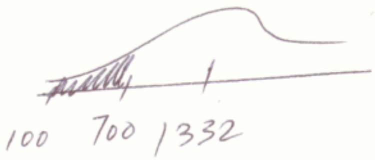
$X \sim$ Normal $\mu = 1332$ $\sigma = 725$

a) $P(X > 2000) = P(Z > \quad)$



b) $P(X < 0)$

c) $P(100 < X < 700) =$

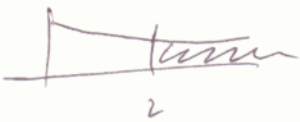


6.30 X = # of unscheduled arrivals

$X \sim Poi(\lambda = 1.12)$ $T \sim Exp(\lambda)$

a) $\mu = \frac{1}{\lambda} = \frac{1}{1.12}$

b) $P(\cancel{X}\,T > 2)$



c). $P(T < 10)$.

HW #5

7.2

ID	Name	Sex	Age	education level	...
1					
2					
3					
⋮					
N = 20					

sample $n = 6$

how representative?

$\hat{p}(M) = \frac{\# M}{6}$. $\qquad p(M) = \frac{\# M}{20}$

compare ...

$\hat{p}(\text{20 year olds}) = \frac{\#\text{ 20 yrs old}}{6}$ $\qquad P(\text{20 years old}) = \frac{\#\text{ 20 yrs old}}{20}$.

compare ...