Q2

1. The left side of the box represents the first quartile(Q1),the middle line represents the median of the dataset and the right most side represents the third quartile(Q3).

Interquartile range=Q3-Q1

According to the box plot Q3 is approx 12 and Q1 is5

Hence interquartile range=Q3-Q1=12-5=7

Interquartile range is a measure of statistical dispersion and variance, being equal to the difference between 75th and 25th percentiles.

**An interquartile range,7 in this case is a measure of where the bulk of the values**

**Lie**

**ii) It is a right skewed box plot since most of the data lies on the low scale.**

**iii) If the point at 25 is changed to 2.5 then min value of the box plot changes elongating the box to include 2.5.**

Q3

**i)The distribution is bimodal containing two modes which are 5 and 7**

ii)the data is skewed to the right since most larger values are concentrated on the left end and smaller values are represent on the right.This means that the mean of the dataset is more than the median.

iii)Using boxplot one can plot five important numbers of the distribution:min,first quartile,median and third quartile .It can only show the distribution of data indicating an easy view of the symmetry and skewness of data.

A histogram can show the observed frequencies and variances which exist amongst them. Thus with a histogram one can know if the data is bimodal or trimodal,something which cannot be observed in a boxplot as a boxplot does not show the frequency information.Histogram is also useful when there is little variances amongst the frequencies.

4)

Success is defined as “reaching the right number”

Failure is defined as “reaching the wrong number”

Probabilities of success and failure are defined as

P(F)=1/200

P(S)=199/200

Prob of getting at least one misdirected call is (1 – Probability (5 Successful Attempts))

Hence applying Bernoulis trials

P(S=5)= 5C5(199/200)5

Thus Prob(at least one misdirected call)=1-(199/200)^5

=1-0.9752487531=0.0247512469

5)

i)most likely outcome is the one with max probability x=2000

ii)Venture is likely to be successful as combined probability of making profit is more than that of making a loss.

i.e is P(x being at least 1000)=P(1000)+P(2000)+P(3000)=0.2+0.3+0.1=0.6

P(of making below 1000)=P(0)+P(-1000)+P(-2000)=0.2+0.1+0.1=0.4

Thus since P(x being at least 1000)>P(of making below 1000)

The venture would be successful.

iii)long term average =Expectation Value

= (0.1)(−2,000) + (0.1)(−1,000) + (0.2)(0) + (0.2)(1,000) + (0.3)(1,000) =800

iv) The good measure of the risk involved in a venture of this kind is standard deviation.

This is because standard deviation is a good measure of variation around the mean and fluctuations,measures volatility.

1000000-640000=360000

Standard deviation==600