HW#10

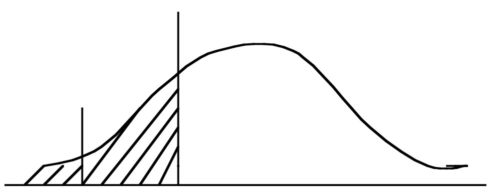
A. H0: mean height =69
   Ha: mean height >69

B. E(Xbar)=E(X)
   SD(Xbar)=SD(X)/sqrt(n)=SD(X)/10

C. a) null hypothesis H0: diff=0
      Alternative hypothesis Ha: diff>0
   b) According to the null hypothesis, E(Xbar)=E(X)=0
   c) Xbar of observed value = (1.2+2.4….+1.4)/10=1.58
   d) SD if observed differences = sqrt [(Σ(x-xbar)^2)/(n-1)]=1.23
   e) Using table in Appendix F, P(T>1.38)=0.1   P(T>2.82)=0.01 (df=9)
   f) Observed value of T =(1.58-0)/(1.23/sqrt(10)=4.06
   g) The smallest value of the observed value of T for which we would reject the null hypothesis is 1.83
   h) Yes, reject the null hypothesis

Section 12.2 P616

3. H0: μ=50
ha: μ<50
xbar=49.25 , sample has 8 plots, SD of sample =3.25,
T=(49.25-50)/(3.25/sqrt(8))=-0.65
According to the alternative hypothesis, Pvalue=P(T<-0.65)



-1.89 -0.65

df=7, if significant level is 5%, Pvalue >0.05, so fail to reject the null hypothesis.
(t=1.89 at 5% significant level with 7 degree of freedom)

4. Xbar=(62+83+…+266+277)/17=146.5
SD== sqrt [(Σ(x-xbar)^2)/(n-1)]=sqrt(68078.25/16)=260.9/4=65.229
T=(146.5-160)/(65.229/sqrt(17))=-0.853
H0: xbar=160
Ha: xbar>160
Df=16, pvalue=P(T>-0.853)>0.05, fail to reject the null hypothesis.
(t=1.75 at 5% significant level with 16 degree of freedom.)

5. H0: diff=0 Ha: diff>0
T=(5-0)/(3.4/sqrt(14))=5.5
Df=13, pvalue=P(T>5.5)<0.05, so reject the null hypothesis.
(t=1.77 at 5% significant level with 13 degree of freedom.)