Answers

1)

```
slices <- c(10, 12,4, 16, 8)
lbls <- c("US", "UK", "Australia", "Germany", "France")
pie(slices, labels = lbls, main="Pie Chart of Countries")
```

 # Pie Chart with Percentages

```
slices <- c(10, 12, 4, 16, 8)
lbls <- c("US", "UK", "Australia", "Germany", "France")
pct <- round(slices/sum(slices)*100)
lbls <- paste(lbls, pct) # add percents to labels
lbls <- paste(lbls,"%",sep="") # ad % to labels
pie(slices,labels = lbls, col=rainbow(length(lbls)),
  main="Pie Chart of Countries")
```

 # 3D Exploded Pie Chart

```
library(plotrix)
slices <- c(10, 12, 4, 16, 8)
lbls <- c("US", "UK", "Australia", "Germany", "France")
pie3D(slices,labels=lbls,explode=0.1,
  main="Pie Chart of Countries ")
```

5)

attach (*mtcars*)

mtcars

mpg

a)

```
plot(wt, mpg, main="Scatterplot Example",
  xlab="Car Weight ", ylab="Miles Per Gallon ", pch=19)
```

b)

```
abline(lm(mpg~wt), col="red") # regression line (y~x)
```

c)

```
# Basic Scatterplot Matrix
pairs(~mpg+disp+drat+wt,data=mtcars, main="Simple Scatterplot Matrix")
```

d)

 # 3D Scatterplot

```
library(scatterplot3d)
attach(mtcars)
scatterplot3d(wt,disp,mpg, main="3D Scatterplot")
```

 # 3D Scatterplot with Coloring and Vertical Drop Lines

```
library(scatterplot3d)
attach(mtcars)
scatterplot3d(wt,disp,mpg, pch=16, highlight.3d=TRUE,type="h", main="3D Scatterplot")
```

 # 3D Scatterplot with Coloring and Vertical Lines

 # and Regression Plane

```
library(scatterplot3d)
attach(mtcars)
s3d <-scatterplot3d(wt,disp,mpg, pch=16, highlight.3d=TRUE,
  type="h", main="3D Scatterplot")
fit <- lm(mpg ~ wt+disp)
s3d$plane3d(fit)
```

3)

a)

```
hist(faithful$eruptions)
```

b)

```
hist(faithful$eruptions, breaks=12, col="red",xlab="eruptions",main="Histogram of eruptions")
```

c)

```
x <- faithful$eruptions
h<-hist(x, breaks=10, col="red", xlab="eruptions",
   main="Histogram with Normal Curve")
xfit<-seq(min(x),max(x),length=40)
```

```
yfit<-dnorm(xfit,mean=mean(x),sd=sd(x))
yfit <- yfit*diff(h$mids[1:2])*length(x)
lines(xfit, yfit, col="blue", lwd=2)
```

d)

```
hist(x, breaks=10, col="red", xlab="eruptions",
  main="Histogram with Normal Curve",freq=FALSE)
```

4)

```
# Simple Bar Plot
counts <- table(mtcars$gear)
barplot(counts, main="Car Distribution",
  xlab="Number of Gears")
```

```
# Simple Horizontal Bar Plot with Added Labels
counts <- table(mtcars$gear)
barplot(counts, main="Car Distribution", horiz=TRUE,
  names.arg=c("3 Gears", "4 Gears", "5 Gears"))
```

 # Stacked Bar Plot with Colors and Legend

```
counts <- table(mtcars$vs, mtcars$gear)
barplot(counts, main="Car Distribution by Gears and VS",
  xlab="Number of Gears", col=c("darkblue","red"),
  legend = rownames(counts))
```

 # Grouped Bar Plot

```
counts <- table(mtcars$vs, mtcars$gear)
barplot(counts, main="Car Distribution by Gears and VS",
  xlab="Number of Gears", col=c("darkblue","red"),
  legend = rownames(counts), beside=TRUE)
x<-c(8, 13, 16, 25, 26, 29, 30, 32, 37, 38, 40, 41, 44, 47, 49, 51, 54, 55, 58, 61, 63, 67, 75, 78, 82, 86, 95)
stem(x)
hist(x)
```

Stem and Leaf Plot Advantages

The stem and leaf plot essentially provides the same information as a histogram, with the following added benefits:

- The plot can be constructed quickly using pencil and paper.
- The values of each individual data point can be recovered from the plot.
- The data is arranged compactly since the stem is not repeated in multiple data points.
- The stem and leaf plot offers information similar to that conveyed by a histogram, and easily can be constructed without a computer.

```
summary(x)

boxplot(x,col='red')
```

7)

```
x = c(.314,.289,.282,.279,.275,.267,.266,.265,.256,.250,.249,.211,.161)

tmp = hist(x) # store the results

lines(c(min(tmp$breaks),tmp$mids,max(tmp$breaks)),c(0,tmp$counts,0),type="l")
```