Task 4

Measurement error = 863 – 857 = 6

Code from RStudio

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# June 07, 2024

# DSC520 T302

# Exercise 1.2



# Begin code for Task 5


# Plotting each histogram individually


# Individual Plot of Normal Distribution

 # mean=0

 # std.dev.=1

 # set line and axis label color to light green

 # label x and y

 # set limits of x axis, x=-4 to x=4

curve(dnorm(x, 0, 1), from=-4, to=4, col="lightgreen", col.lab="lightgreen", xlab="Normal
Distribution", ylab="Frequency", xlim=c(-4,4))


# Individual Plot of Negative Skew

 # alpha=8

 # beta=2.58

 # plotted over the range, x=0 to x=1

 # set line and axis label color to blue

 # label x and y
```

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 # set limits of x axis, x=0 to x=1

curve(dbeta(x, 8, 2.58), from=0, to=1, col="blue", col.lab="blue", xlab="Negative Skew",
ylab="Frequency", xlim=c(0,1))


# Individual Plot of Positive Skew

 # alpha=2.58

 # beta=8

 # calculated over the range, x=0 to x=1

 # set line and axis label color to purple

 # label x and y

 # set limits of x axis, x=0 to x=1

curve(dbeta(x, 2.58, 8), from=0, to=1, col='purple', col.lab="purple", xlab="Positive Skew",
ylab="Frequency", xlim=c(0,1))




# Plotting all three curves on the same plot


# Normal distribution

 # mean=0.5

 # std.dev.=0.125

 # plotted from x=0 to x=1

 # set line color to light green

 # leave the y-axis label color as standard black

 # set limits of x-axis

 # Shifting the mean and std.dev. of the normal distribution plot to get all three plots to be
proportional on the same graph

curve(dnorm(x, 0.5, .125), from=0, to=1, col="darkgreen", ylab="Frequency", xlim=c(0, 1), ylim=c(0,
3.5))
```
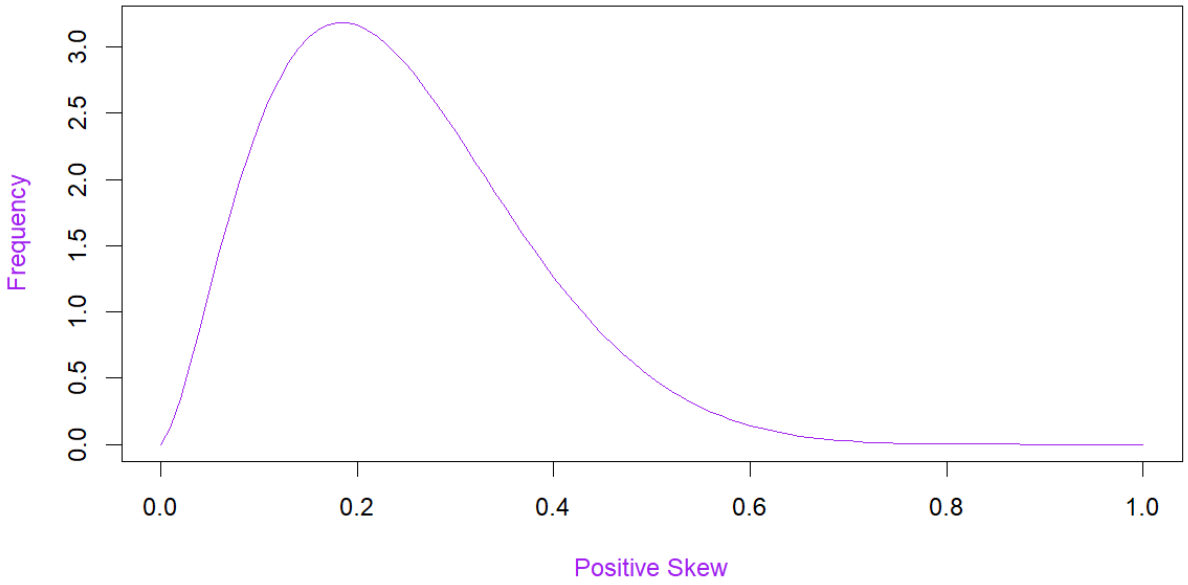
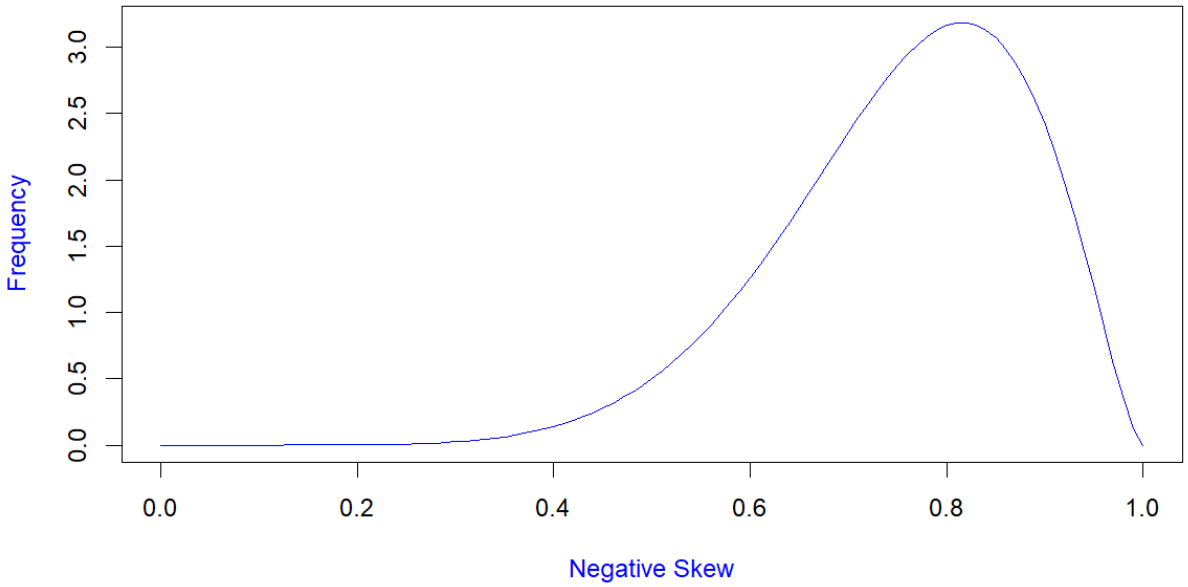
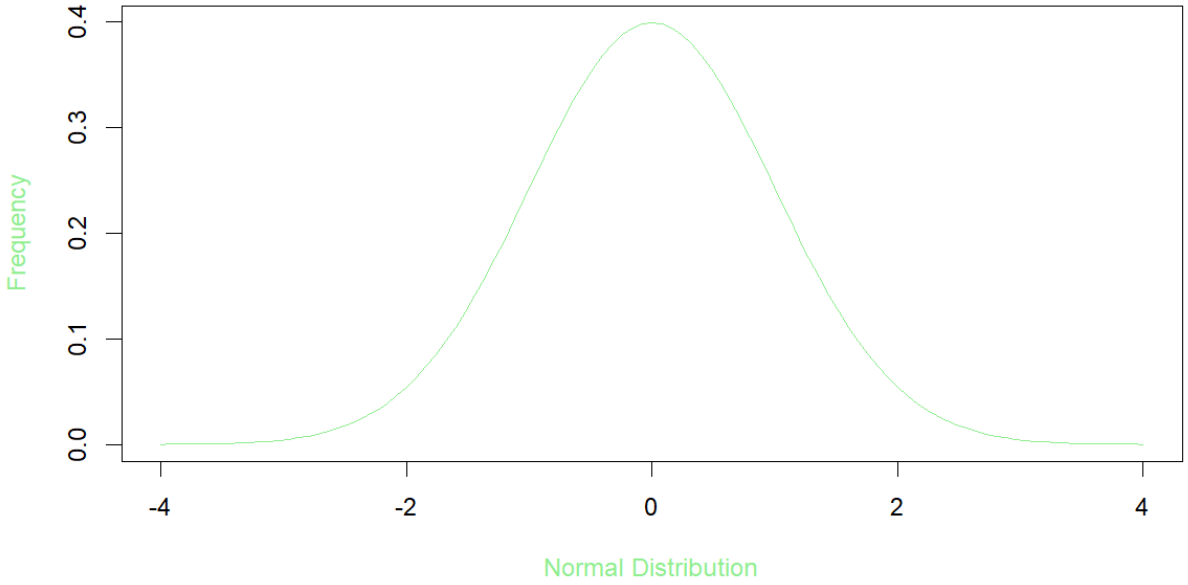
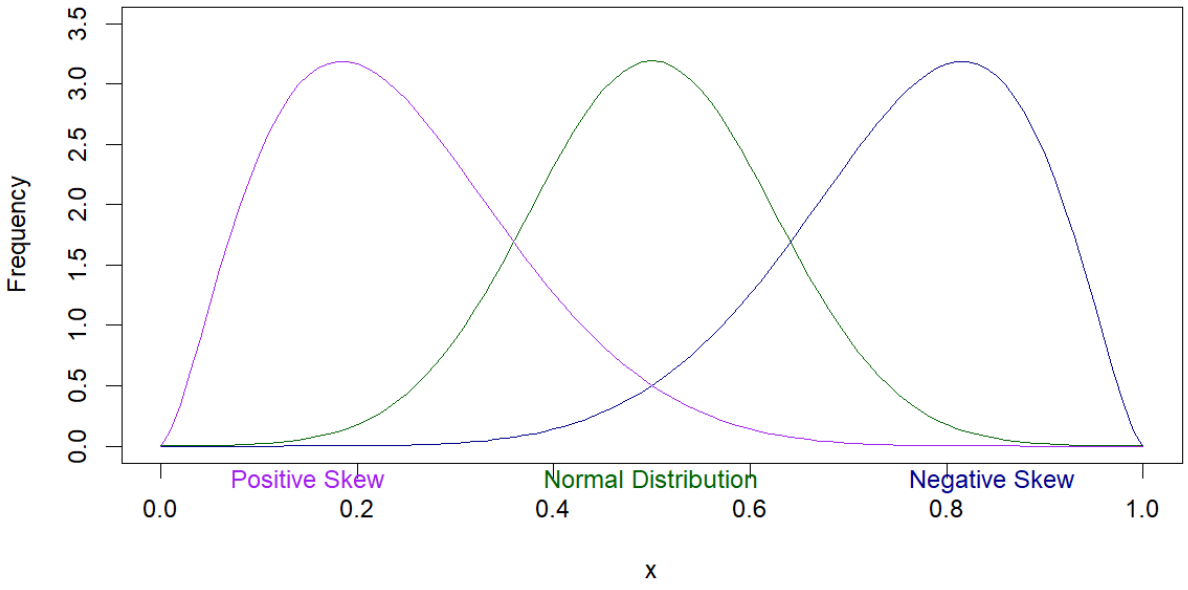

```
# Negative skew
 # alpha=8
 # beta=2.58
 # plotted over the range x=0 to x=1
 # set color to dark blue
 # added to the normal distribution plot from line 22
curve(dbeta(x, 8, 2.58), from=0, to=1, col="darkblue", add=TRUE)

# Positive skew
 # alpha=2.58
 # beta=8
 # plotted over the range x=0 to x=1
 # set color to purple
 # added to the normal distribution plot from line 22
curve(dbeta(x, 2.58, 8), from=0, to=1, col='purple', add=TRUE)

# label all three lines on the x-axis in their respective colors
mtext("Normal Distribution", side=1, col="darkgreen")
mtext("Negative Skew", side=1, adj=0.88, col="darkblue")
mtext("Positive Skew", side=1, adj=0.12, col="purple")
```


Frequency
0.0
0.5
1.0
1.5
2.0
2.5
3.0
0.0
0.2
0.4
0.6
0.8
1.0
Positive Skew


Frequency
0.0
0.5
1.0
1.5
2.0
2.5
3.0
0.0
0.2
0.4
0.6
0.8
1.0
Negative Skew


Frequency
0.0
0.1
0.2
0.3
0.4
-4
-2
0
2
4
Normal Distribution


Frequency
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
Positive Skew
Normal Distribution
Negative Skew
0.0
0.2
0.4
0.6
0.8
1.0
x