1A.

If they are staying then their chances are ⅓

Sample space would be

Door 1 = 1/3
Door 2 = 1/3
Door 3 = ⅓

1B.

Sample space would be initially

Door 1 = 1/3
Door 2 = 1/3
Door 3 = ⅓

But say door 3 is opened now it would be

Door 1 = 1/3
Door 2 = 2/3

2A.
```
> 1 - pbinom(3,10,0.1)
[1] 0.0127952
```

2B.
```
> pbinom(10, 100, 0.1, lower.tail=TRUE)
[1] 0.5831555
```

2C.
```
> ceiling(log(1 - 0.95) / log(1 - 0.1))
[1] 29
```

2D.
```
> 1 - pbinom(3,10,0.1)
[1] 0.0127952
> 1 - pbinom(2,100,0.1)
[1] 0.9980551
> 1 - pbinom(2,23,0.1)
[1] 0.4080433
> 1 - pbinom(2,25,0.1)
[1] 0.4629059
```

```
> 1 - pbinom(2,45,0.1)
[1] 0.8409571
> 1 - pbinom(2,50,0.1)
[1] 0.8882712
> 1 - pbinom(2,60,0.1)
[1] 0.9469549
> 1 - pbinom(2,61,0.1)
[1] 0.9508817
```

So 61

3A.

```
> dbinom(1, size = 5, prob = 0.13)^4 * dbinom(1, size = 5, prob = 0.13)
[1] 0.00716064
```

3B.

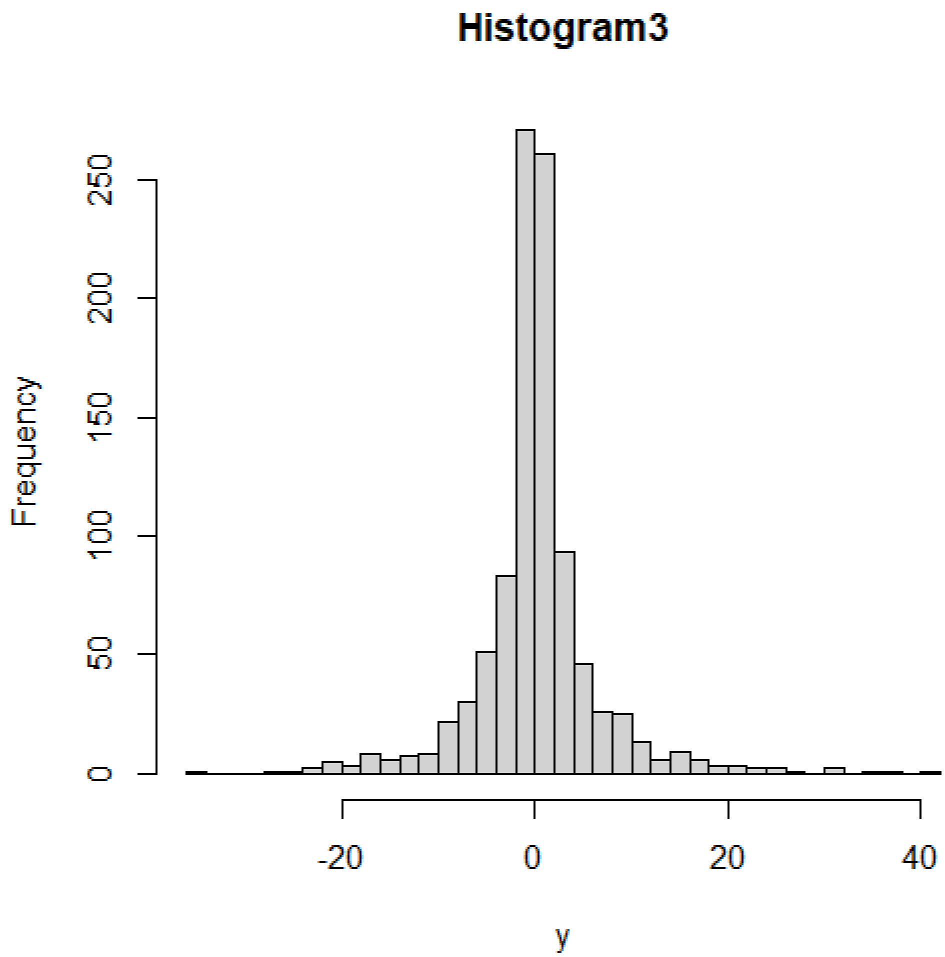
```
> dbinom(3, size = 5, prob = 0.13)
[1] 0.01662909
```

3C.

```
> plefty = 0.13
> p0 = dbinom(0, size = 5, prob = plefty)
> p1 = dbinom(1, size = 5, prob = plefty)
> p2 = dbinom(2, size = 5, prob = plefty)
> p3 = dbinom(3, size = 5, prob = plefty)
> p0 + p1 + p2 + p3
[1] 0.9987205
```

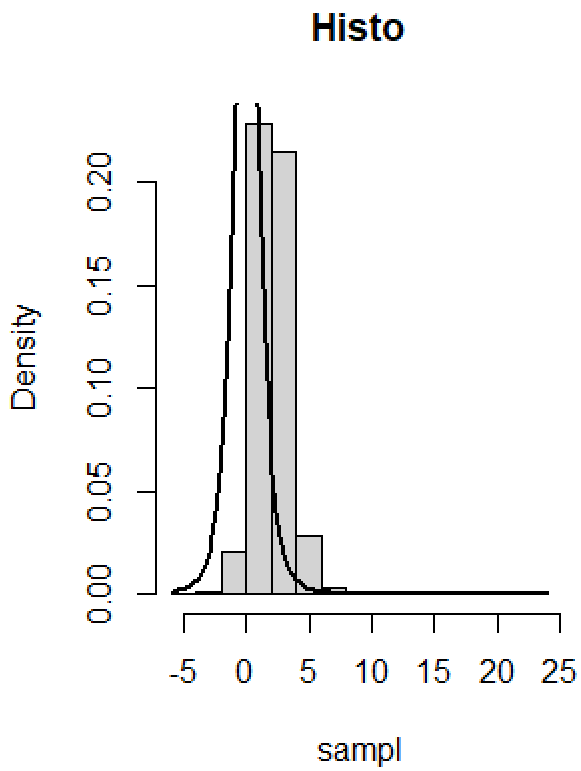
4.

```
> draw_histogram <- function(n) {
+
+    y <- replicate(1000, sum(rnorm(n)^3))
+
+    hist(y, breaks = 30, main = paste0("Histogram", n), xlab = "y")
+ }
>
> draw_histogram(3)
```



5.

```
> sampl <- 2 + qt(runif(1000), 4)
> hist(sampl, freq = FALSE, main = "Histo")
> curve(dt(x, df = 4), add = TRUE, lwd = 2)
```



6.
Pretty sure reaction time is distributed normally,

The normal dis of reaction time shows that a majority of people have a reaction time around the mean , and that fewer people have very short or very long reaction times. Th