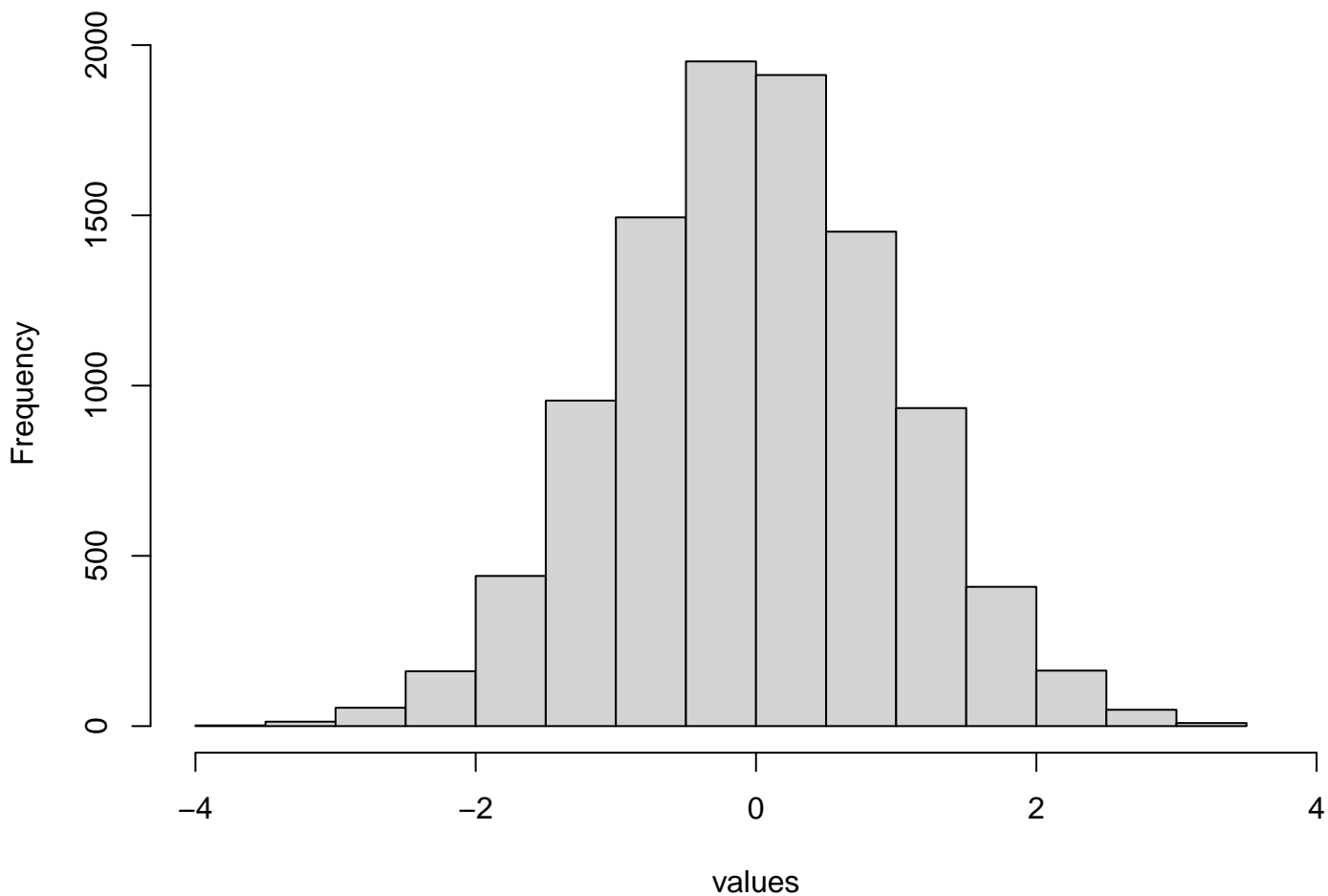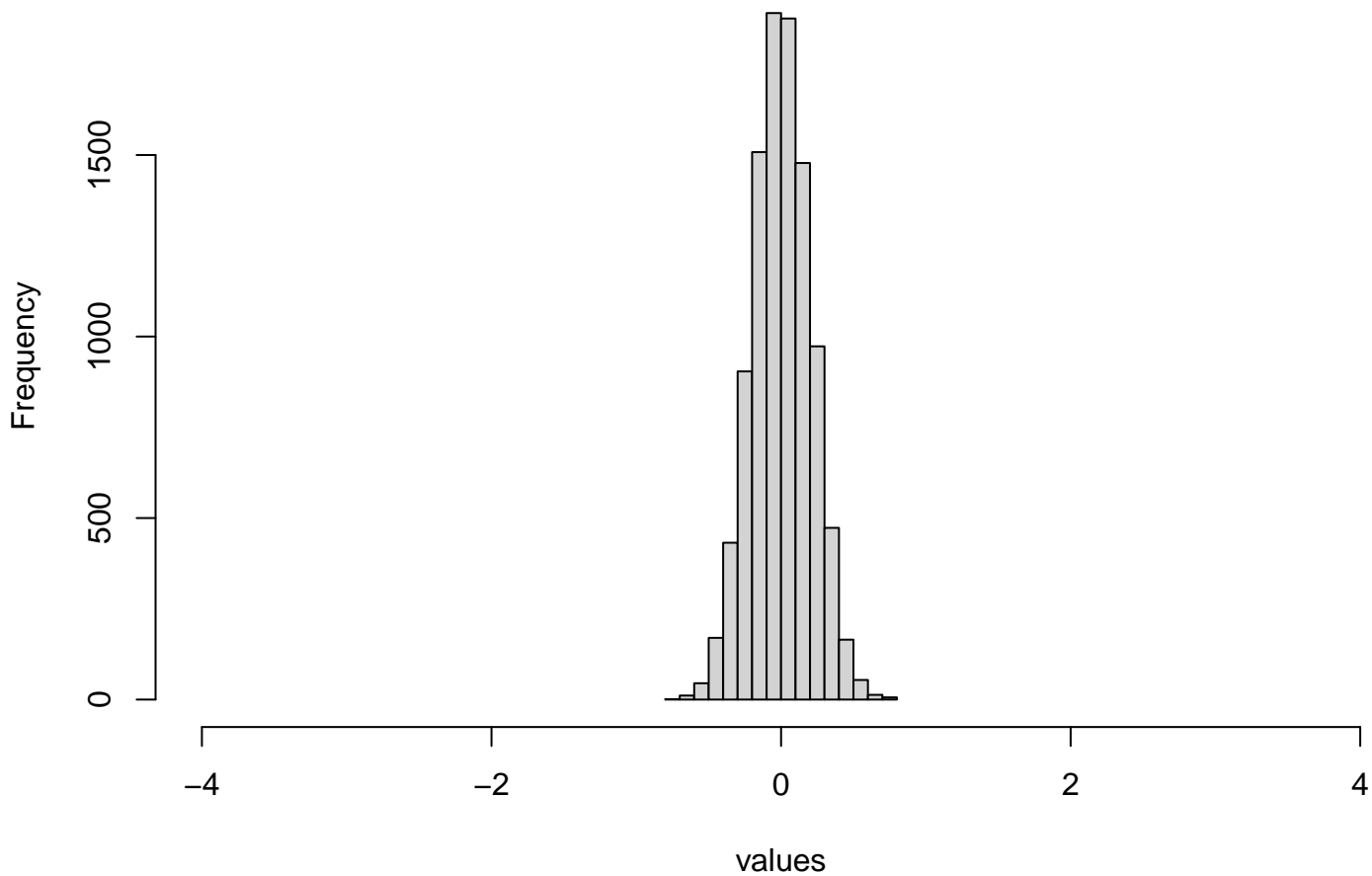mean=0, sd=1

Histogram of values
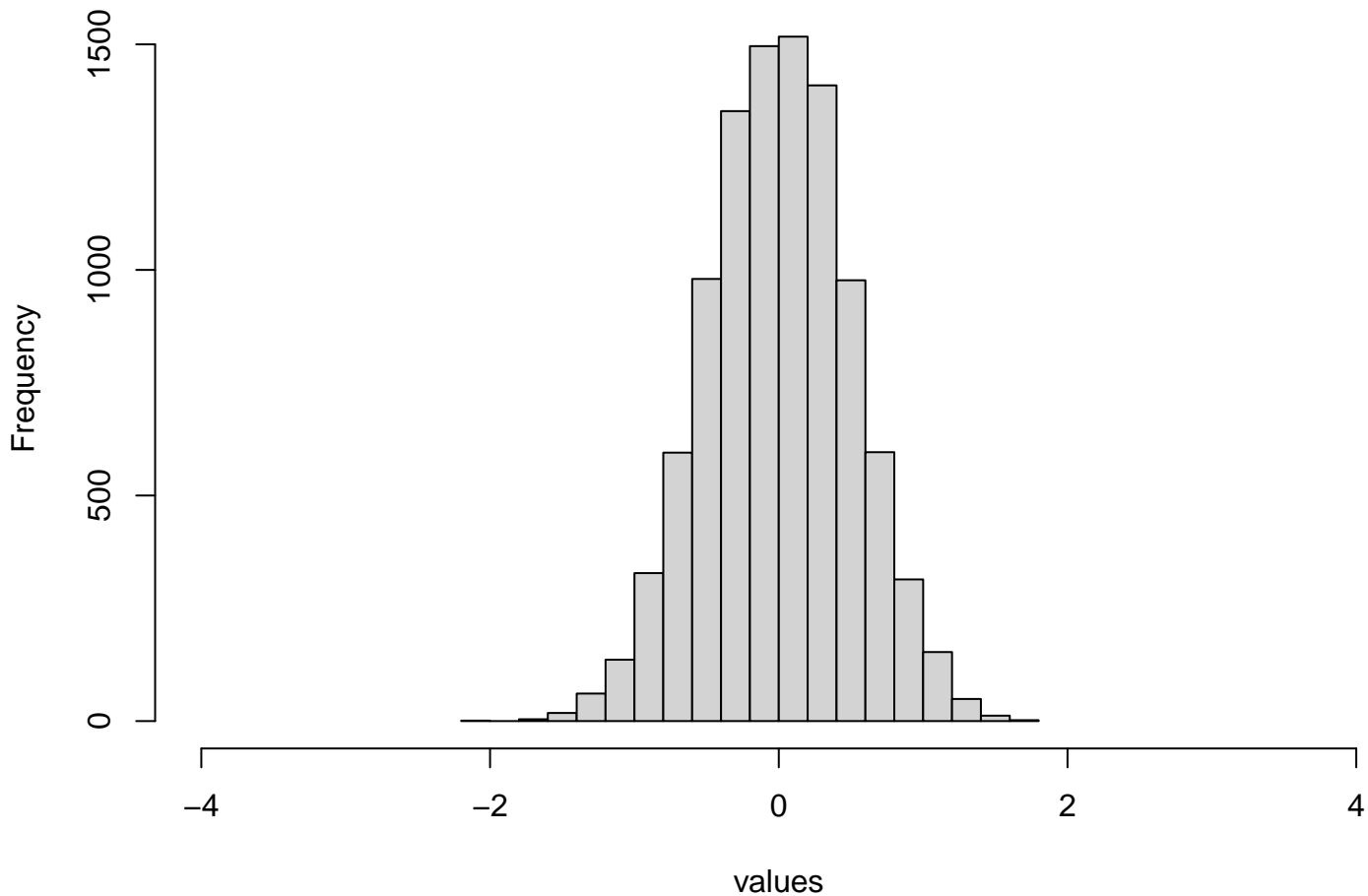
Histogram of values

mean=0, sigma=0.5

Histogram of values

The standard deviation (or sigma) indicates how close the data is to the mean of the data. In these cases, we chose 10,000 random numbers in a normal distribution. In the first case (page #1), with the sigma at 1, the points are more spread out and further from the mean since the standard deviation is higher. In the second case (page #2) the sigma is 0.2, and the lowest of the three examples so there are more data points closer to the mean. For the third case (page #3) the sigma is 0.5 which shows that the data is further from the mean than the 0.2 sigma but not as far apart as the 1 sigma. Therefore, the higher the standard deviation, the more the data will be spread apart from the mean, and the lower the standard deviation, the closer the data points will be to the mean.

```{r}
#2.(a) and (b)
values = rnorm(10000, mean = 0, sd = 1) #changed sd from 1 then to 0.2 and then to 0.5 and ran again each time
hist(values, xlim = c(-4,4))
```

```{r}
#2.(a) and (b)
values = rnorm(10000, mean = 0, sd = 0.2)
hist(values, xlim = c(-4,4))
```

```{r}
#2.(a) and (b)
values = rnorm(10000, mean = 0, sd = 0.5)
hist(values, xlim = c(-4,4))
```