D1

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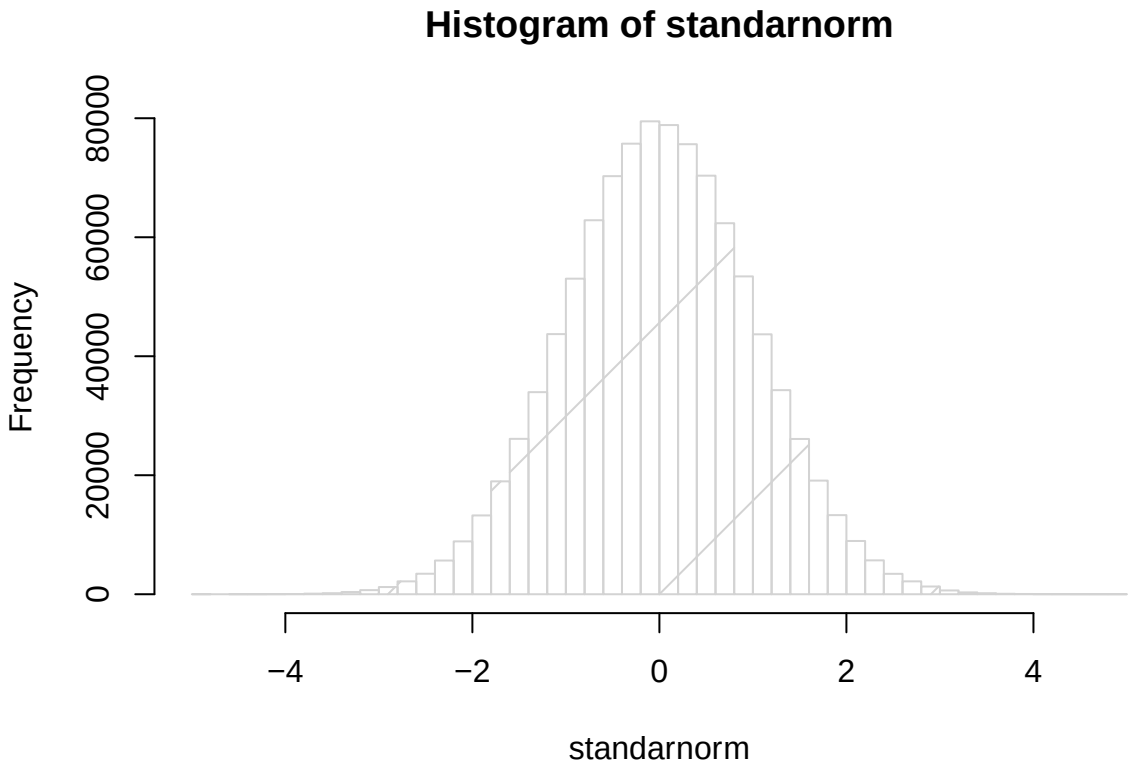
3.1.1

a. The peak is at 0, the mean for normal distribution.
b. Positive values decrease, negative values also decrease.
c. The height decreases as it moves away from 0
d. Bulk of area is in the middle
e. This is almost the same as the standard normal distribution

```
standarnorm=rnorm(1000000, mean = 0, sd = 1)

hist(standarnorm, breaks = 50, density = TRUE)
```



3.1.2 SKIP

3.1.3 SKIP

3.1.4 SKIP

3.1.5

a.

```
pnorm(2, mean=0, sd=1)
```

```
## [1] 0.9772499
```

b.

```
pnorm(0.5, mean=0, sd=1)
```

```
## [1] 0.6914625
```

c. $P(0.5 < Z < 2) = 0.9772499 - 0.6914625 = 0.2857874$

d.

```
pnorm(1.5, mean=0, sd=1)
```

```
## [1] 0.9331928
```

e. $P(Z > 1.5) = 0.066072$

f.

```
qnorm(0.35, mean=0, sd=1)
```

```
## [1] -0.3853205
```

g. 0.88

h.

```
qnorm(0.88, mean=0, sd=1)
```

```
## [1] 1.174987
```

i.

```
qnorm(0.2, mean=0, sd=1)
```

```
## [1] -0.8416212
```

```r
qnorm(0.8, mean=0, sd=1)
```

```
## [1] 0.8416212
```

```r
pnorm(0.8416212, mean=0, sd=1)
```

```
## [1] 0.8
```

$P(Z < Z2) = 0.8$ j. $z2 = 0.8416212$