# F1

Jeremiah Theisen

2024-10-10

### 4.1.1

a. mean
b. proportion
c. proportion
d. mean
e. mean
f. proportion

### 4.1.2

a. Length Class Mode 250000000 character character

b. Length Class Mode 1000 character character

c. [1] 0.897 0.017 error

d. different samples have different errors.

e. It looks like a Normal Distribution.

### 4.1.3

a. np =
   n(1-p) =
b. mean = 0.88, variation/error = 0.010276
c. It fits pretty good
d.

```
pnorm(0.85, mean=0.88, sd=0.010276)
```

```
## [1] 0.001753395
```

e.

```
qnorm(0.025, mean=0.88, sd=0.010276)
```

```
## [1] 0.8598594
```

```r
qnorm(0.975, mean=0.88, sd=0.010276)
```

```
## [1] 0.9001406
```

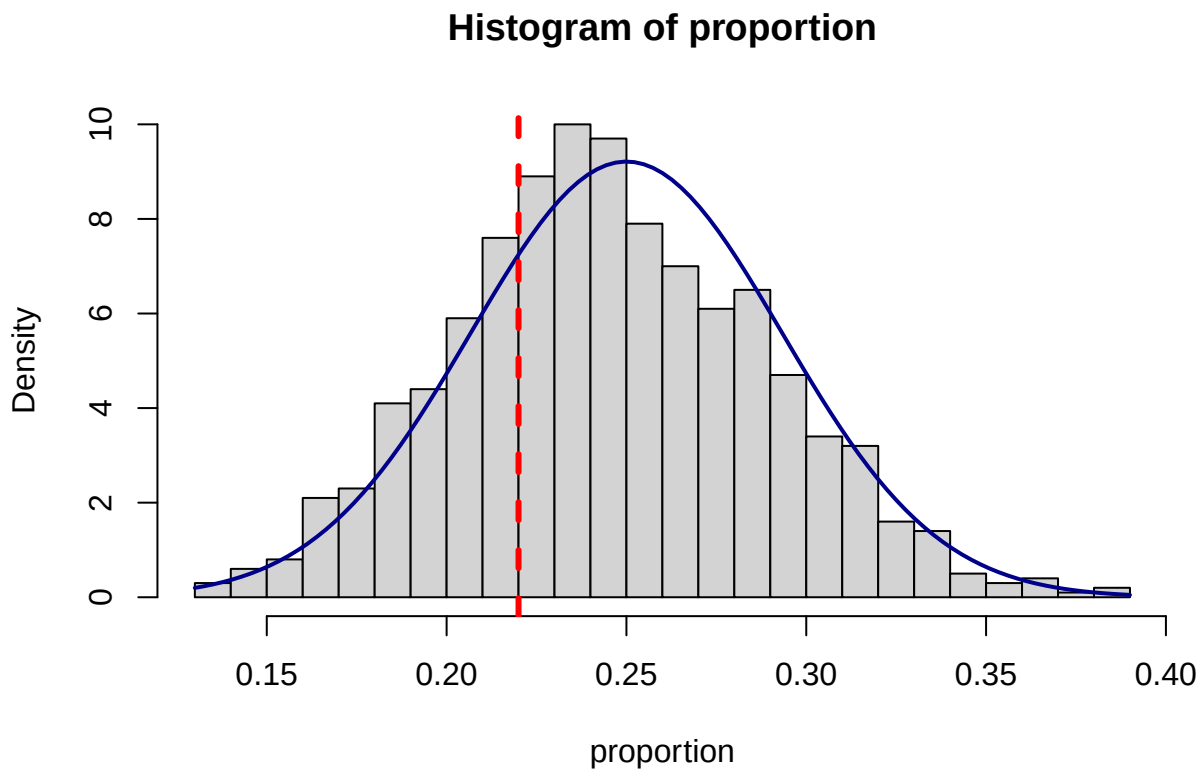
k = 0.02

f.

### 4.1.4

a. 3. People who attended the shows
b. 2. Proportion of those who attended the shows who bought merchandise
c. 0.22
d. 0.0414
e. No, because it falls within the sample error
f. 0.04, which is different but not by much
g.

```r
trials=1000

n=100
p=0.25
phat=22/100

mu_p=p
SE_p=sqrt(p*(1-p)/n)

results=rep(0,trials)

for(i in 1:n){
  results=results+sample(c(1, 0), trials, replace = TRUE, prob = c(p, 1-p))
}

proportion=results/n

hist(proportion, prob=TRUE, breaks=25)
curve(dnorm(x, mean=mu_p, sd=SE_p), col="darkblue", lwd=2, add=TRUE, yaxt="n")
abline(v=phat, col="red",lwd=3, lty=2 )
```




```
print(trials)
```

```
## [1] 1000
```

It would not be abnormal

### 4.1.5 SKIP