Homework 4.1

Drew Remmenga

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Exercise 5.4 (a)

```r
pnorm(355,355.2,.5)
```

```
## [1] 0.3445783
```

Exercise 5.4 (b)

```r
z=(355-355.2)/(.5/sqrt(6))
pnorm(z,0,1)
```

```
## [1] 0.1635934
```

Exercise 5.5 (a) Normal

Exercise 5.5 (b) V has a lower variance so it will be lower.

Exercise 5.5 (c)

```r
z1=(35-40)/(15/sqrt(50))
z2 =(45-40)/(15/sqrt(50))
pnorm(z2,0,1)-pnorm(z1,0,1)
```

```
## [1] 0.9815779
```

```r
z1=(35-40)/(15/sqrt(100))
z2=(45-40)/(15/sqrt(100))
pnorm(z2,0,1)-pnorm(z1,0,1)
```

```
## [1] 0.9991419
```

Exercise 5.6 Yes due to the central limit theroem. This will still be approximately corrected becaue the mean is assymptotically normal.

```r
z=((4000/50)-78)/(12/sqrt(50))
pnorm(z,0,1)
```

```
## [1] 0.8807036
```

Exercise 5.14 (a)

```r
mu=100*.2
mu
```

```
## [1] 20
```

```r
v= 100*.2*(1-.2)
sqrt(v)
```

```
## [1] 4
```

Exercise 5.14 (b)

```r
p=.2
p
```

```
## [1] 0.2
```

```r
v=.2-.2^(2)
sqrt(v)
```

```
## [1] 0.4
```

```r
1-pbinom(30,100,.2)
```

```
## [1] 0.006059335
```

```r
z=(30-20)/4
1-pnorm(z,0,1)
```

```
## [1] 0.006209665
```

```r
answers=rbinom(1,100,.2)
prop.test(answers,30)
```

```
##
##  1-sample proportions test with continuity correction
##
## data:  answers out of 30, null probability 0.5
## X-squared = 0.3, df = 1, p-value = 0.5839
## alternative hypothesis: true p is not equal to 0.5
## 95 percent confidence interval:
##  0.3766139 0.7402456
## sample estimates:
##         p
## 0.5666667
```

Exercise 5.14 (c)