

Homework 4.1

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Exercise 5.4 (a)

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

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

Exercise 5.4 (b)

```
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)

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

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

```
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 theorem. This will still be approximately corrected because the mean is asymptotically normal.

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

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

Exercise 5.14 (a)

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

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

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

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


Exercise 5.14 (b)

```
p=.2  
p
```

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

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

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

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

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

Exercise 5.14 (c)

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

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

```
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 = 4.0333, df = 1, p-value = 0.04461  
## alternative hypothesis: true p is not equal to 0.5  
## 95 percent confidence interval:  
##  0.5044209 0.8458720  
## sample estimates:  
##      p  
## 0.7
```