Chapter 7 Homework

Kyle Ligon

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Problem 7.7 b)

```
#T_U
qchisq((1-0.05)/2, 149)
```

```
## [1] 147.2568
```

```
#T_L
qchisq(0.05/2, 149)
```

```
## [1] 117.098
```

```
#Lower End
(149)*(9.537^2)/(147.2568)
```

```
## [1] 92.03107
```

```
#Upper End
(149)*(9.537^2)/(117.098)
```

```
## [1] 115.7338
```

Problem 7.7 c)

```
#chisquare value
(149*9.537^2)/(9^2)
```

```
## [1] 167.3111
```

```
#upper val in Chi Sq test
qchisq(0.99, 149)
```

```
## [1] 192.073
```

```
#probability in the right tail of our chi-sq dist
1-pchisq(167.3111, 149)
```

```
## [1] 0.1449358
```

Problem 7.16 a) and b)

```
f <- (53.77^2)/(36.94^2)
sqrt((1.53*f))
```

```
## [1] 1.800482
```

```
sqrt((1/53*(1/f)))
```

```
## [1] 0.09436673
```

```
# part b test stat
f
```

```
## [1] 2.118782
```

```
# part b p-value
1- pf(2.1188, 90, 90)
```

```
## [1] 0.0002228897
```

7.16 c) Satterwhaite's Approximation

```r
kk <- (53.77^2)/(91)
kk
```

```
## [1] 31.77157
```

```r
jj <- (36.94^2)/(91)
jj
```

```
## [1] 14.9952
```

```r
kk^2/90
```

```
## [1] 11.21592
```

```r
jj^2/90
```

```
## [1] 2.498402
```

```r
31.7716+14.9952
```

```
## [1] 46.7668
```

```r
11.2159+2.4984
```

```
## [1] 13.7143
```

```r
46.7668/13.7143
```

```
## [1] 3.410076
```

7.16 d) p-value

```r
pt(-0.4284, df = 3)
```

```
## [1] 0.3486281
```