

Chapter 10

10.1

Consider the following data:

Group 1: 3, 5, 2, 4, 8, 4, 3, 9

Group 2: 4, 4, 3, 8, 7, 4, 2, 5

Group 3: 6, 7, 8, 6, 7, 9, 10, 9

Assume the three groups have a common population variance, σ_p^2 . Estimate σ_p^2 .

```
[1] 4.136905
```

10.2

For the previous data, use R to test the hypothesis of equal means using the ANOVA F test with $\alpha = 0.05$.

```
$F.test
```

```
[1] 6.053237
```

```
$p.value
```

```
[1] 0.00839879
```

```
$df1
```

```
[1] 2
```

```
$df2
```

```
[1] 21
```

```
$MSBG
```

```
[1] 25.04167
```

```
$MSWG
```

```
[1] 4.136905
```

10.3

For the previous data, verify that Welch's test statistic is $F_w = 7.7$ with degrees of freedom $v_1 = 2$, $v_2 = 13.4$

```
[1] TRUE
```

```
[1] TRUE
```

```
[1] TRUE
```

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