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Lab10
11/17/21
*Worked with Jessica Bonin

1. rm(list = ls())

```
rope = read.csv(here("data", "rope.csv"))

rope$rope.type = factor(x=rope$rope.type)
levels(rope$rope.type)

n_obs = length(rope$rope.type)
n_groups = length(levels(rope$rope.type))

#To find total sum of squares
mean_cut=mean(rope$p.cut)
res_cut=mean_cut-rope$p.cut

ss_tot = sum(res_cut^2)

df_tot = n_obs-1


agg_resids=aggregate(
  x = rope$p.cut,
  by = list(rope$rope.type),
  FUN = function(x){x-mean(x)})

str(agg_resids)

agg_sq_resids=aggregate(
  x = rope$p.cut,
  by = list(rope$rope.type),
  FUN = function(x){sum((x-mean(x))^2)})

str(agg_sq_resids)

ss_within = sum(agg_sq_resids$x)
df_within = 115

ss_among = ss_tot - ss_within
df_among = 5
```

```
ms_among  = ss_among / (n_groups - 1)
ms_within = ss_within / (n_obs - n_groups)

f_ratio = ms_among/ms_within
f_pval = 1-pf(f_ratio, df_among, df_within)
```

2. No, I do not think that the variances are equal as all the boxes are different widths.
3. p-value = 0.00143
4. The variances are not equal between the groups, so an ANOVA is not appropriate on the raw data since one of the assumptions for an ANOVA is that all the variances are equal. The data would need to be transformed first in order to use the ANOVA.
5. BLAZE
6. The mean percent cut for the base case is the “estimate” of the intercept in the coefficient table. This value is 0.36714.
7. 0.36714 +(-0.10164) = 0.2655