HW 6

Chapter 11: Section 11.1, Exercise 10. "The strength of concrete used in commercial …"

Here is the ANOVA table for this data set:

Analysis of Variance for Strength

Source	DF	SS	MS	F	P
Batch	9	86.793	9.644	7.22	0.000
Method	2	23.229	11.614	8.69	0.002
Error	18	24.045	1.336		
Total	29	134.067			

Follow these instructions:

a. With α=0.05, perform the 2 tests of hypothesis:

- (Factor A = Batch) H_0: $\boldsymbol{\sigma_A^2}$= 0 vs. H_a: $\boldsymbol{\sigma_A^2} \neq 0$
- (Factor B = Method) H_0: $\beta_1 = \beta_2 = \beta_3$ vs. H_a: H_0 is false.

Follow the 4-step procedure and use the P-values above.

b. Suppose that Factor A (Batch) is a random effect. Compute by hand an estimate of $\boldsymbol{\sigma_A^2}$.

c. How much of total variation in a single observation is attributed to differences between batches?