Application exercise 4.6:
ANOVA - Part 2

Submit your responses on Sakai, under the appropriate assignment. Only one submission per team is required. One team will be randomly selected and their responses will be discussed.

How quickly can you "Where's Waldo?"

An experiment run by a British video-game manufacturer in an attempt to calibrate the level of difficulty of certain tasks in a video game asked presented subjects with a simple "Where's Waldo?"-style visual scene. The subjects had to find a number (1 or 2) floating somewhere in the scene, to identify the number, and to press the corresponding button as quickly as possible. The response variable is their reaction time.

	Subject	PictureTarget.RT	Littered	FarAway
1	10	635	0	0
2	10	1144	0	0
3	10	570	0	0
4	10	589	0	0
5	10	754	0	0
6	10	601	0	0
...				

- `PictureTarget.RT`: the subject's reaction time in milliseconds.

- `Subject`: a numerical identifier for the subject undergoing the test.

- `FarAway`: was the number to be identified far away (1) or near (0) in the visual scene?

- `Littered`: the British way of saying whether the scene was cluttered (1) or mostly free of clutter (0).

The ANOVA output is shown below:

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
rxntime$Subject	11	4060822.10	369165.65	20.05	0.0000
Residuals	1908	35129401.48	18411.64		

1. What percent of variability in reaction times is explained by differences between subjects?

2. We want to determine which means are different from each other. What significance level should we use for these tests and why?

3. Sample statistics for Subject 6 and Subject 8 are shown below. Use these to evaluate whether the mean reaction time for these two subjects is different. *Hint:* You're doing a post-hoc pairwise test, how are SE and df defined?

	Subject 6	Subject 8
mean	628.57	539.05
sd	189.76	110.67
n	160	160