

(Continued)

2. How many groups were analyzed in this ANOVA? Explain how you know.

A: There were 5 groups in the experiment. The $df_{\text{between-groups}}$ was 4, and it was calculated by taking the total number of groups – 1. Therefore, for $df_{\text{between-groups}}$ to be 4, the total number of groups had to be 5.

3. How was the $MS_{\text{between-groups}}$ calculated?

A:

$$\frac{SS_{\text{between-groups}}}{df_{\text{between-groups}}} \\ \frac{14}{4} = 3.50$$

4. How was the $MS_{\text{within-groups}}$ calculated?

A:

$$\frac{SS_{\text{within-groups}}}{df_{\text{within-groups}}} \\ \frac{184}{48} = 3.83$$

5. How was the F ratio test statistic calculated?

A:

$$\frac{MS_{\text{between-groups}}}{MS_{\text{within-groups}}} \\ \frac{3.50}{3.83} = 0.91$$

Here are two additional examples to get practice calculating and interpreting a one-way, between-subjects ANOVA. The first example contains raw data from individual participants, and the second example provides summary statistics to work with.

Problem #2

A medical researcher is interested in testing the effectiveness of a new drug in reducing depressive symptomology. To do so, she randomly assigns clinically depressed people to one of three groups: one group that receives the experimental drug, one group that receives a placebo, and one group that receives nothing at all. The researcher gathers data from 15 people. Depressive symptoms are rated on a 1 (*low*) to 9 (*high*) response range. Here are the data from these 15 participants:

Type of Drug		
Experimental Drug	Placebo	Nothing
9	6	6
6	6	8
5	5	6
6	3	6
9	8	9