

CHECKING YOUR PROGRESS: A SELF-TEST

- If there is no treatment effect, the F ratio should be close to which of the following?
 - 0
 - 1
 - 10
 - ∞
- True or False: A significant F ratio reveals which of the possible between-group comparisons is significant.
- Match the following:

_____ df_{error}	a. $\frac{MS_b}{MS_w}$
_____ df_{tot}	b. $N - 1$
_____ df_{subj}	c. $\frac{SS_w}{df_w}$
_____ df_b	d. $\frac{SS_b}{df_b}$
_____ df_w	e. $\frac{SS_b}{df_w}$
_____ MS_w	f. $K - 1$, where K is the number of groups
_____ F (between subjects)	g. $K - N$
_____ MS_b	h. $N - K$
_____ MS_{error}	i. $\frac{MS_b}{MS_{\text{error}}}$
_____ F (repeated measures)	j. $(K - 1)(S - 1)$
	k. $\frac{SS_{\text{error}}}{df_{\text{error}}}$
	l. $S - 1$

- At the end of the study described earlier in Problem 12 of this chapter, blood samples from each animal were analyzed for total cholesterol and HDL (high-density lipoprotein) cholesterol. The results are reported below in total cholesterol/HDL ratios; lower ratios are better, according to current health guidelines. Compute the F ratio and test it for significance.

Diet 1	Diet 2	Diet 3	Diet 4
2.7	1.5	2.5	2.2
2.2	1.8	2.4	2.3
2.1	1.7	2.2	1.6
2.0	2.0	1.6	2.6
1.6	1.9	1.7	2.2
2.2	1.5	2.2	2.8
2.8	1.6	2.3	2.7
2.0	1.7	2.0	
2.6	1.7	2.2	
2.6	1.8		

5. A child psychologist is interested in the course of development of object conservation in infants. The psychologist studies seven infants over a 6-month period. The infants are given 20 test trials at the ages of 9 months, 12 months, and 15 months. On each trial, an object is shown to the child and then is covered by a cloth. The child shows conservation if he or she looks for the object or becomes distressed when it is covered. The number of trials, out of 20, on which the child shows conservation is recorded. Perform the appropriate analysis; if significant, do all pairwise comparisons with the Fisher LSD test. Tell what your answers mean in the context of the problem.

<u>Child</u>	<u>9 Months</u>	<u>12 Months</u>	<u>15 Months</u>
A	0	3	17
B	2	4	17
C	3	6	16
D	1	2	14
E	0	1	19
F	4	9	2
G	4	3	20