

TABLE 4.3

The Computation of Sample Variance (last two columns)
Using n and $(n - 1)$ in the Denominator

A Participants Sampled ($n=2$)	B Scores for Each Participant	C s^2 Using (n)	D s^2 Using ($n-1$)
A, A	8, 8	0	0
A, B	8, 5	2.25	4.50
A, C	8, 2	9.00	18.00
B, A	5, 8	2.25	4.50
B, B	5, 5	0	0
B, C	5, 2	2.25	4.50
C, A	2, 8	9.00	18.00
C, B	2, 5	2.25	4.50
C, C	2, 2	0	0
Mean sample variance:		$\frac{27}{9} = 3.0$	$\frac{54}{9} = 6.0$

To compute the average sample variance in Columns C and D, we add up all possible values for sample variance listed in that column and divide by 9 (or the total number of samples that can be selected). In this example, each sample was selected from a population with a variance of 6. Notice that only when we divide SS by $(n - 1)$ do we find that, on average, the sample variance is equal to the population variance—it is an unbiased estimator.