The table depicts a two-way ANOVA in which gender has two groups (male and female), marital status has three groups (married, single never married, divorced), and the means refer to happiness scores (n = 100):

1. What is/are the independent variable(s)? What is/are the dependent variable(s)?
2. What would be an appropriate null hypothesis? Alternate hypothesis?
3. What are the degrees of freedom for 1) gender, 2) marital status, 3) interaction between gender and marital status, and 4) error or within variance?
4. Calculate the mean square for 1) gender, 2) marital status, 3) interaction between gender and marital status, and 4) error or within variance.
5. Calculate the F ratio for 1) gender, 2) marital status, and 3) interaction between gender and marital status.
6. Identify the criterion Fs at alpha = .05 for 1) gender, 2) marital status, and 3) interaction between gender and marital status.
7. If alpha is set at .05, what conclusions can you make?

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Source | Sum of Squares | (degrees of freedom [df]) | Mean Square | Fobt. | Fcrit. |
| Gender | 68.15 | ? | ? | ? | ? |
| Marital Status | 127.37 | ? | ? | ? | ? |
| Gender \* Marital Status (A x B) | 41.90 | ? | ? | ? | ? |
| Error (Within) | 864.82 | ? | ? | NA | NA |
| Total | 1102.24 | 99 | NA | NA | NA |

**Please Note:** The table that you see in the assignment has been slightly modified from the one presented in the module notes since it is beyond the scope of this unit to have students calculate p values. Instead you are asked to calculate the F value and compare it to the critical F value to determine whether the test is significant or not.