ANOVA Basics: Match each SS with its corresponding formula. Item #6 has been completed for you.

1. _____ $= SS_A$

  A. $\sum\limits_{i=1}^{n_j}\left(X_{ij} - \overline{X}_a\right)^2$

2. _____ $= SS_E$

  B. $\sum\limits_{i=1}^{N}\left(X_{ij} - M\right)^2$

3. _____ $= SS_{Tot}$

  C. $\sum\limits_{a=1}^{a}n_a\left(\overline{X}_a - M\right)^2$

4. _____ $= df_A$

  D. $N - 1$

5. _____ $= df_E$

  E. $N - a$

6. _____ $= df_{Tot}$

  F. $a - 1$

7. A satisfaction survey is administered to all SAU students. We want to compare the average level of satisfaction among freshmen, sophomores, juniors, and seniors (compare the means of these four groups). We could run a series of independent samples t-tests to compare pairs of groups (freshmen vs. sophomores, freshmen vs. juniors, etc), but that would be too time consuming. Give at least one more reason why we would not want to run a series of t-tests.

8. What does the term "ANOVA" stand for?   _____

9. What does "SS" stand for in an ANOVA?   _____

10. What does "MS" stand for in an ANOVA?   _____

11. What does "df" stand for in an ANOVA?   _____

12. Identify two of the three assumptions that must be satisfied in order to conduct an ANOVA:

    Assumption #1: _____

    Assumption #2: _____

13. In an ANOVA, we compare $\dfrac{SS_A}{SS_E}$ to an F-distribution to determine if the null hypothesis is retained.   **True**   or   **False**

14. In an ANOVA, we compare $\dfrac{MS_A}{MS_{Tot}}$ to an F-distribution to determine if the null hypothesis is retained.   **True**   or   **False**