A metamorphic rock found near Dundas, Minnesota contains staurolite, muscovite, kyanite, biotite, and quartz. In thin section, staurolite appears to be partially replaced by kyanite. Therefore, you correctly assume that a reaction relationship must exist between the minerals in the rock. To test your idea, you decide to use linear algebra to balance a reaction between the phases.

For this assignment, use a spreadsheet to balance a reaction between these phases in the KFASH chemical system. Assume staurolite has the following formula: \( \text{Fe}_2\text{Al}_9\text{Si}_{3.75}\text{O}_{22}(\text{OH})_2 \).

**Please turn in your balanced reaction and a copy of your spreadsheet showing how you arrived at the solution.** Please set-up your spreadsheet so it is easy to read, and label the different steps. (This ensures that when you return to your spreadsheet in 5 years you will know exactly what you did.)

References

