1. Over the years, the thermite reaction has been used for welding railroad rails, in incendiary bombs, and to ignite solid fuel rocket motors. The reaction is:

\[ \text{Fe}_2\text{O}_3(s) + 2\text{Al}(s) \rightarrow 2\text{Fe}(l) + \text{Al}_2\text{O}_3(s) \]

a. What masses (in g) of iron(III) oxide and aluminum must be used to produce 15.0 g iron? (5 points)

b. What is the maximum gram amount of aluminum oxide that could be produced? (5 points)