A unit fraction has a numerator of one and a natural number denominator. Find five unique unit fractions that sum to 1.

Determine if there are more sets of five unique unit fractions that sum to 1. If so, determine a general method for finding other sets. If not, explain why not.

What other $n$ number of unique unit fractions can be found that sum to 1? Explain your reasoning and justify your conclusions.

Except for 1 and $\frac{1}{2}$, fractions can be broken into unit fractions that result in a sum of 1 using the following generalization,

$$\frac{1}{a} = \frac{1}{(a+1)} + \frac{1}{a(a+1)}$$

where $a > 0$.

Verify this algebraic identity.

How can you use the identity above to write $n$ number of unit fractions that result in a sum of 1?