1145-11-249John R Greene\* (jgreene@d.umn.edu), Department of Mathematics and Statistics, 1117<br/>University Drive, Duluth, MN 55812, and Kalani Thalagoda, Department of Mathematics and<br/>Statistics, 1117 University Drive, Duluth, MN 55812. Nonstandard continued fractions with<br/>irrational numerator. Preliminary report.

The simple continued fraction of  $\sqrt{n}$  has very nice periodic and palindromic properties. Expansions of the form

$$\sqrt{n} = c_0 + \frac{z}{c_1 + \frac{z}{c_2 + \frac{z}{\cdot}}}$$

have the same palindromic properties provided z is a positive integer which is not too large and the expansion is periodic. When z is rational, the palindromic properties are only guaranteed when the expansion is periodic and the c's are sufficiently large compared to z. Here we investigate continued fraction expansions for  $\sqrt{a + b\sqrt{m}}$  in the form

$$\sqrt{a+b\sqrt{m}} = c_0 + \frac{\sqrt{m}}{c_1 + \frac{\sqrt{m}}{c_2 + \frac{\sqrt{m}}{\cdot}}}$$

In this cases, when the expansion is periodic, it appears to mimic the simple continued fraction expansion of  $\sqrt{n}$  more closely than the two previously mentioned cases. (Received August 24, 2018)