John R Greene* (jgreene@d.umn.edu), Department of Mathematics and Statistics, 1117 University Drive, Duluth, MN 55812, and Kalani Thalagoda, Department of Mathematics and Statistics, 1117 University Drive, Duluth, MN 55812. Nonstandard continued fractions with irrational numerator. Preliminary report.
The simple continued fraction of $\sqrt{n}$ has very nice periodic and palindromic properties. Expansions of the form

$$
\sqrt{n}=c_{0}+\frac{z}{c_{1}+\frac{z}{c_{2}+\frac{z}{\ddots}}}
$$

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

$$
\sqrt{a+b \sqrt{m}}=c_{0}+\frac{\sqrt{m}}{c_{1}+\frac{\sqrt{m}}{c_{2}+\frac{\sqrt{m}}{\ddots}}} .
$$

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)

