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Abstract

We derive interesting arctangent identities involving the golden ratio, Fibonacci numbers and Lucas numbers. Binary BBP-type formulas for the arctangents of the odd powers of the golden ratio are also derived, for the first time in the literature. Finally we derive golden-ratio-base BBP-type formulas for some mathematical constants, including π, $\log 2$, $\log \phi$ and $\sqrt{2} \arctan 2$. The $\phi-$nary BBP-type formulas derived here are considerably simpler than similar results contained in earlier literature.