Donald A. Sokol* (vsokol@sbcglobal.net), 11S.047 Palisades Rd., Burr Ridge, IL 60527. The Uncertainty Principle of the Pythagorean Theorem.

It’s not widely recognized that circa 1800 B.C., the Babylonian algorithm for the integer triple, $a^2 + b^2 = c^2$, was constructed as $a = 2(x + y)y; c = a + x^2$ and $b = \sqrt{c^2 - a^2}$ and later updated to $b = c - 2y^2$ (where $x = 1, y = 1$ then $a = 4, c = 5$ and $b = 3$). Euclid later, circa 300 B.C., modified this algorithm to $a = 2xy, c = x^2 + y^2$ and $b = x^2 - y^2$ with appropriate caveats. (Where $x = 2, y = 1$ then $a = 4, c = 5$, and $b = 3$). Still later, circa 2000 A.D., it was shown that $a = 2(x - y)y, c = -a + x^2$ and $b = c - 2y^2$. (Where $x = 3, y = 1$ then $a = 4, c = 5$ and $b = 3$). At least six other algorithms using various combinations of $+/−x$, and $+/−y$ in “a” are possible without redundancy. Other better known algorithms for integer triples in $x$ and $y$ include reciprocal pairs Ala Robson and Sierpinski’s modified Euclidian based algorithm. The result is that one cannot easily determine which algorithm was used to produce a specific integer triple. (Received August 04, 2015)