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Heidi A. Haynal* (heidi.haynal@wallawalla.edu), 204 South College Avenue, College Place, WA 99324. *What a higher q -skew τ -derivation can do for you.*

There's more than one way to twist the multiplication in a polynomial ring. When automorphisms alone are used, we know necessary and sufficient conditions for the new ring to satisfy a polynomial identity. When automorphisms with derivations are used, it seems unlikely that the resulting noncommutative ring would ever satisfy a polynomial identity. However, under certain restrictions, the polynomial identity degree of such a ring has been pinned down by comparing it with its associated skew polynomial ring without derivations. We'll show how the presence of a higher q -skew τ -derivation allows us to extend previous results to a larger class of skew polynomial rings. (Received August 26, 2009)