Title: On some functional equation arising from $(m, n)$-Jordan derivations of prime rings

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In this paper, we prove the following result. Let $m \geq 1$, $n \geq 1$ be some fixed integers with $m \neq n$, and let $R$ be a prime ring with $\text{char}(R) > (m + n)^2$. Suppose that $D : R \to R$ is an additive mapping satisfying the relation $(m + n)^2 D(x^4) = 4m^2 D(x)x^3 + 4mn x D(x)x^2 + 4mn x^2 D(x)x + 4n^2 x^3 D(x)$ for all $x \in R$. In this case, $D$ is a derivation and $R$ is commutative.

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