# Krull's principal ideal theorem

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Let $R$ be a Noetherian ring, and $P$ be a prime ideal minimal over a principal ideal $(x)$. Then the `http://planetmath.org/HeightOfAPrimeIdeal`height of $P$, that is, the `http://planetmath.org/KrullDimension`dimension of $R_P$, is less than 1. More generally, if $P$ is a minimal prime of an ideal generated by $n$ elements, the height of $P$ is less than $n$.