zero ideal

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The subset $\{0\}$ of a ring R is the least two-sided ideal of R. As a principal ideal, it is often denoted by
$$(0)$$
and called the *zero ideal*.

The zero ideal is the identity element in the addition of ideals and the absorbing element in the `http://planetmath.org/ProductOfIdeals`multiplication of ideals. The quotient ring $R/(0)$ is trivially isomorphic to R.

By the entry quotient ring modulo prime ideal, (0) is a prime ideal if and only if R in an integral domain.