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There are two common definitions used for the Zariski-Samuel associated prime ideals of an ideal in a (non-Noetherian) commutative ring. The first is that a prime ideal, P , is a Zariski-Samuel associated prime ideal to the ideal I if $P = \sqrt{(I : a)}$ for some $a \in R$. The second requires, in addition, that $(I : a)$ be P -primary. We refer to the first type as weak Zariski-Samuel associated prime ideals of I , denoted $wZS(I)$, and the second type as strong Zariski-Samuel associated prime ideals, denoted $sZS(I)$. It is well known that $wZS(I) = sZS(I)$ whenever I is decomposable (i.e. I can be expressed as a finite intersection of primary ideals). We will discuss other situations in which these two types of associated primes are equal as well as examples of when they are not. Also, there will be some discussion of the relationship between the Zariski-Samuel primes and other types of associated prime ideals such as the weak Bourbaki associated primes. (Received September 07, 2007)