Goldie's theorem

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Let R be a ring with an identity. Then R has a right classical ring of quotients Q which is semisimple Artinian if and only if R is a semiprime right Goldie ring. If this is the case, then the composition length of Q is equal to the uniform dimension of R.

An immediate corollary of this is that a semiprime right Noetherian ring always has a right classical ring of quotients.

This result was discovered by Alfred in the late 1950's.