

## Re: what makes it true?

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*Source:* <http://sci.tech--archive.net/Archive/sci.math/2005-09/msg00564.html>

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- *From:* "Jumbie" <[invalid@xxxxxxxxxxx](mailto:invalid@xxxxxxxxxxx)>
  - *Date:* Fri, 2 Sep 2005 22:55:46 -0500
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"odin" <[ragnarok@xxxxxxxxxxx](mailto:ragnarok@xxxxxxxxxxx)> wrote in message  
[news:zP2dnZ2dnZ1D9IesnZ2dnSc9hd6dnZ2dRVn-zp2dnZ0@xxxxxxxxxxxxxxxxxxxx](mailto:news:zP2dnZ2dnZ1D9IesnZ2dnSc9hd6dnZ2dRVn-zp2dnZ0@xxxxxxxxxxxxxxxxxxxx)

>> 1 is prime. Your statement is false.

>

> Nope.

>

> Today, the standard definition of a prime number is any positive integer  
> greater than 1 which has no divisors other than 1 and itself. This is good  
> because it makes the Fundamental Theorem of Arithmetic work out nicely.  
> You often need to multiple primes, which kind of sucks if you are  
> multiplying by 1. In Gauss's time, 1 was included as a prime. But they  
> eventually decided to drop the unit from the club. But hey... its just a  
> definition. Nothing to get worked up about.

>

Ok we are both right, in a way ----

<http://mathworld.wolfram.com/PrimeNumber.html>

The number 1 is a special case which is considered neither prime nor composite (Wells 1986, p. 31). Although the number 1 used to be considered a prime (Goldbach 1742; Lehmer 1909; Lehmer 1914; Hardy and Wright 1979, p. 11; Gardner 1984, pp. 86-87; Sloane and Plouffe 1995, p. 33; Hardy 1999, p. 46), it requires special treatment in so many definitions and applications involving primes greater than or equal to 2 that it is usually placed into a class of its own. A good reason not to call 1 a prime number is that if 1 were prime, then the statement of the fundamental theorem of arithmetic would have to be modified since "in exactly one way" would be false because any  $n=n*1$  In other words, unique factorization into a product of primes would fail if the primes included 1. A slightly less illuminating but mathematically correct reason is noted by Tietze (1965, p. 2), who states "Why is the number 1 made an exception? This is a problem that schoolboys often argue about, but since it is a question of definition, it is not arguable." As more simply noted by Derbyshire (2004, p. 33), "2 pays its way [as a prime] on balance; 1 doesn't."

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    - ◇ *From:* Jumbie
  - ◆ *Re: what makes it true?*
    - ◇ *From:* odin
  
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