There are a number of assumptions that involve prime numbers there are many we could cite, however, instead of mentioning existing, we wanted to expose us, which we consider true (common denominator in all conjecture), but considered accurate mathematical conjecture is not provable, so we must not make the mistake of thinking that is true to not having demonstrated.

As our guess is just a generalization of the aforementioned Bertrand's postulate (both strong and weak version), which best name as the Generalized Conjecture of Bertrand's postulate for call it.

## Conjecture Generalized Bertrand's Postulate

Let (m, x) over integers 0, is true then:

$2m < p1 < m (x + 2) < p2 < 2m (x + 1)$

Where:

P1 and P2 are prime numbers such that:

$P1 + p2 = 2m (x + 1) + 2m$

If we replace x by 1, we note that our conjecture becomes weak version of Bertrand's postulate, ie

$2m < 3m < 4m$

For this assumption we know that there is at least one prime between 2m and 4m, but that does not make true our guess as to the same is true there should be two primes such that: $2m < p1 \leq 3m$ and $3m \leq p2 < 4m$. In other words what we have surmised is that there are at least two primes between 2m and 4m.

The stronger version of Bertrand's postulate states that there is at least one prime number between n and 2n - 2, see what happens with generalized conjecture when we substitute for 1 am.

$2m < p1 < m (x + 2) < p2 < 2m (x + 1)$

Using m = 1, we have:

$2 < p1 < (x + 2) < p2 < 2 (x + 1)$

$2 (x + 1) = 2x + 2$

$2x + 2 = 2 (x + 2) - 2$, substituting this value in the original conjecture, we have:

$2 < p1 < (x + 2) < p2 < 2 (x + 2) - 2$

Using $x + 2$ equal to n, we have:

$2 < p\ 1 < n < p2 < 2n - 2$

Where we can clearly notice the presence of the strong version of Bertrand's postulate.

In the latter case in particular, is almost obvious truth our conjecture, and does not require much effort to demonstrate that it is true for this individual.

As we have described, for even numbers, so there must be least two primes between n and 2n, look at some examples:

(8,16)

By Bertrand's postulate, we know that there is at least a cousin between 8 and 16, but the general conjecture states that there are two, so there must be a cousin from 8 (8 + 16) / 2 and a second cousin between (8 + 16) / 2 and 16.

(8 +16) / 2 = 12

8 9 10 11 12

12 13 14 15 16

Indeed we can notice the existence of two cousins, as is the affirms the widespread conjecture. Eye, eye, does not prove the veracity of the conjecture has only been one example (quite easily by a) to illustrate what has been said.

Using m = 1 and for values of x> 1, we have:

2 3 4 5 6
2 3 4 5 6 7 8
2 3 4 5 6 7 8 9 10

Using m = 2 and for values of x> 0, we have:

4 5 6 7 8
4 5 6 7 8 9 10 11 12
4 5 6 7 8 9 10 11 12 13 14 15 16
4 5 6 7 8 9 10 11 12 13 14 16 17 18 19 20

Using m = 3 and for values of x> 0, we have:

6 7 8 9 10 11 12
6 7 8 9 10 11 12 13 14 15 16 17 18
6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

Using m = 4 and for values of x> 0, we have:

8 9 10 11 12 13 14 15 16
8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32

In the examples we can see that when m = 1, then x must
be greater than 1, since we would only have a prime number between 2m and
2m (x + 1).

2 3 4

The latter is a particular case of the generalized conjecture
Bertrand's postulate.