The Goldbach Conjecture.

Some background.

I present to you the first twenty **prime numbers**

$$2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, \dots$$

The Conjecture.

Every even integer greater than two can be written as the sum of two primes.

Experimental evidence.

$$4 = 2 + 2$$
, $6 = 3 + 3$, $8 = 3 + 5$, $10 = 3 + 7$, $12 = 5 + 7$.

Can you keep going?

$$14 = \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$$

$$16 = \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$$

$$18 = +$$

$$20 = \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$$

$$24 = \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$$

$$26 = \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$$

$$28 = \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$$

$$30 = \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$$

$$32 = \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$$

$$34 = \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$$

$$36 = \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$$

$$38 = __+ __$$

$$40 = \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$$

$$42 = \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$$

$$44 = \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$$