This works for me

Multiplication in Ancient Egypt

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We associate ancient Egypt with the pyramids, hieroglyphs, pharaohs, Moses, and the Nile River. The mathematics of the time is equally fascinating. See, for example, the book by Gillings (1982), which is still in print.

In this article, we describe their approach to multiplication. We will use the usual Hindu-Arabic numerals to illustrate the Egyptian method.

Suppose that we want to multiply 19 by 59. We can double 59, and then double again as shown in the table below.

We see that 2 times 59 is 118, and 4 times 59 is 236. So, 6 times 59 must be 118 + 236 = 354.

Notice that 19 = 1 + 2 + 16, as indicated by 'x' (where 1 is 2^0, and 2 is 2^1).

$59 \times 1 = 59$
$59 \times 2 = 118$
$59 \times 2 \times 2 = 236$
$59 \times 2 \times 2 \times 2 = 472$
$59 \times 2 \times 2 \times 2 \times 2 = 944$

So 19 times 59 must be
59 + 118 + 944 = 1121.

The multiplication in the example depends on the fact 19 can be written as a sum of distinct powers of 2. Since this is true for any integer, the method will work for any multiplication problem. Thus, to multiply two positive integers, all you need to know is how to double and how to add.

While this method will not surprise anyone who is well versed in binary arithmetic, it is impressive that this method was used in ancient Egypt more than 3500 years ago. Clearly, they knew that every positive integer could be expressed as a sum of distinct powers of 2 even though they would not have expressed it this way. How did they know this?

Gillings (1982) describes this method and other fascinating aspects of arithmetic in ancient Egypt.

x	x			x	
1	2	4	8	16	etc.
59	118	236	472	944	etc.

Reference

Gillings, R.J. (1982) *Mathematics in the time of the pharaohs*. New York: Dover Publications.