MathFLIX CHALLENGE

Multiplication: Lattice Method

Index	1	2	3	4	5	6	7	8	9	0
1	0/1	0/2	0/3	0/4	0/5	0/6	0/7	0/8	0/9	0/0
2	0/2	0/4	0/6	0/8	1/0	1/2	1/4	1/6	1/8	0/0
3	0/3	0/6	0/9	1/2	1/5	1/8	2/1	2/4	2/7	0/0
4	0/4	0/8	1/2	1/6	2/0	2/4	2/8	3/2	3/6	0/0
5	0/5	1/0	1/5	2/0	2/5	3/0	3/5	4/0	4/5	0/0
6	0/6	1/2	1/8	2/4	3/0	3/6	4/2	4/8	5/4	0/0
7	0/7	1/4	2/1	2/8	3/5	4/2	4/9	5/6	6/3	0/0
8	0/8	1/6	2/4	3/2	4/0	4/8	5/6	6/4	7/2	0/0
9	0/9	1/8	2/7	3/6	4/5	5/4	6/3	7/2	8/1	0/0

In the 1600s, a mathematician named John Napier invented the calculator you see above. Cut out each of the strips above to make your own set of Napier rods. You can use them to multiply.

Index	3
1	0/3
2	0/6
3	0/9
4	1/2
5	1/5
6	1/8
7	2/1
8	2/4
9	2/7

Index	3	2
1	0/3	0/2
2	0/6	0/4
3	0/9	0/6
4	1/2	0/8
5	1/5	1/0
6	1/8	1/2
7	2/1	1/4
8	2/4	1/6
9	2/7	1/8

Always begin by using the index rod first.

Let's multiply 3 × 8. First put the #3 rod next to the index rod. Next find the #8 on the index rod. You'll find the answer, 24, is in the diagonal lines of the #3 rod.

Let's multiply 32 × 8. Leave the #3 rod in place next to the index rod. Place the #2 rod next to the #3 rod. Fine #8 on the index rod. To calculate the answer we add the #4 from the diagonal of the #3 rod to the #1 from the diagonal of the #2 rod to get the answer 256.

What's the answer to 32 × 9?