Multiplication — Table and Technique — Six × Nif

×	2	3	4	5
0	0	0	0	0
1	2	3	4	5
2	4	10 six	12 eight	14 ten
3	10 six	13 nine	20 twelve	23 dozen-three
4	12 eight	20 twelve	24 dozen-four	32 thirsy-two
5	14 ten	23 dozen-three	32 thirsy-two	41 forsy-one

×	2	3	4	5
10 six	20 twelve	30 thirsy	40 forsy	50 fifsy
11 seven	22 dozen-two	33 thirsy-three	44 forsy-four	55 fifsy-five
12 eight	24 dozen-four	40 forsy	52 fifsy-two	104 nif four
13 nine	30 thirsy	43 forsy-three	100 nif	113 nif nine
14 ten	32 thirsy-two	50 fifsy	104 nif four	122 nif dozen-two
15 eleven	34 thirsy-four	53 fifsy-three	112 nif eight	131 nif thirsy-one

×	2	3	4	5
20 dozen	40 forsy	100 nif	120 nif twelve	140 nif forsy
21 dozen-one	42 forsy-two	103 nif three	124 nif dozen-four	145 nif forsy-five
22 dozen-two	44 forsy-four	110 nif six	132 nif thirsy-two	154 nif fifsy-four
23 dozen-three	50 fifsy	113 nif nine	140 nif forsy	203 two nif three
24 dozen-four	52 fifsy-two	120 nif twelve	144 nif forsy-four	212 two nif eight
25 dozen-five	54 fifsy-four	123 nif dozen-three	152 nif fifsy-two	221 two nif dozen-one

×	2	3	4	5
30 thirsy	100 nif	130 nif thirsy	200 two nif	230 two nif thirsy
31 thirsy-one	102 nif two	133 nif thirsy-three	204 two nif four	235 two nif thirsy-five
32 thirsy-two	104 nif four	140 nif forsy	212 two nif eight	244 two nif forsy
33 thirsy-three	110 nif six	143 nif forsy-three	220 two nif twelve	253 two nif fifsy-three
34 thirsy-four	112 nif eight	150 nif fifsy	224 two nif dozen-four	302 three nif two
35 thirsy-five	114 nif ten	153 nif fifsy-three	232 two nif thirsy-two	311 three nif seven

×	2	3	4	5
40 forsy	120 nif twelve	200 two nif	240 two nif forsy	320 three nif twelve
41 forsy-one	122 nif dozen-two	203 two nif three	244 two nif forsy-four	325 three nif dozen-five
42 forsy-two	124 nif dozen-four	210 two nif six	252 two nif fifsy-two	334 three nif thirsy-four
43 forsy-three	130 nif thirsy	213 two nif nine	300 three nif	343 three nif forsy-three
44 forsy-four	132 nif thirsy-two	220 two nif twelve	304 three nif four	352 three nif fifsy-two
45 forsy-five	134 nif thirsy-four	223 two nif dozen-three	312 three nif eight	401 four nif one

×	2	3	4	5
50 fifsy	140 nif forsy	230 two nif thirsy	320 three nif twelve	410 four nif six
51 fifsy-one	142 nif forsy-two	233 two nif thirsy-three	324 three nif dozen-four	415 four nif eleven
52 fifsy-two	144 nif forsy-four	240 two nif forsy	332 three nif thirsy-two	424 four nif dozen-four
53 fifsy-three	150 nif fifsy	243 two nif forsy-three	340 three nif forsy	433 four nif thirsy-three
54 fifsy-four	152 nif fifsy-two	250 two nif fifsy	344 three nif forsy-four	442 four nif forsy-two
55 fifsy-five	154 nif fifsy-four	253 two nif fifsy-three	352 three nif fifsy-two	451 four nif fifsy-one

For *each row and column*, the **last digit** follows the same pattern in all sextants, and for *each row*, the **first digits** follow the same variation pattern from the first row:

	0	1	2	3	4	5
0	n0	n0	n0	n0	n0	n0
1	n0	n1	n2	n3	n4	n5
2	n0	n2	n4	n0	n2	n4
3	n0	n3	n0	n3	n0	n3
4	n0	n4	n2	n0	n4	n2
5	n0	n5	n4	n3	n2	n1

	0	1	2	3	4	5
0	n0	n0	n0	n0	n0	n0
1	n0	n1	n2	n3	n4	n5
2	n0	n2	n4	n0	n2	n4
3	n0	n3	n0	n3	n0	n3
4	n0	n4	n2	n0	n4	n2
5	n0	n5	n4	n3	n2	n1

	2	3	4	5
0	0n	0n	0n	0n
1	0n	0n	0n	0n
2	0n	1n	1n	1n
3	1n	1n	2n	2n
4	1n	2n	2n	3n
5	1n	2n	3n	4n

I don't think it's possible to memorise the full 2~55×2~55 niftimal multiplication table, there's 5204 1,156 values in it, but it is possible to memorise the multiplication table for 2~5×2~55; that's 344 136 values, but not only the 5×5 basic pattern repeats regularly, and you can easy learn it, even if you just focus on memorising one row a day, it'll take you 54 34 days to learn it all by heart; discounting the 10 6, 11 7, 20 12, 21 13, 30 18, 31 19, 40 24, 41 25, 50 30, 51 31 rows, you can learn the whole table in just 40 24 days, being very very conservative;

When using the six × nif multiplication, the technique is as follows:

```
Step 1:
3 × 50 = 230

   123450
    × 543
---------
      230
```

```
Step 2:
3 × 34 = 150

   123450
    × 543
---------
      230
   150++

here you put two plus
signs, representing the
advance of two digits
```

```
Step 3:
3 × 12 = 40

   123450
    × 543
---------
      230
   150++
  40++++

and here there are 4
plus signs, for the 4
digits advanced
```

```
Step 4 (optional):
sum the first round of multiplication

   123450   you could do this at the
    × 543   very end, doing it here
---------   just to make things a lit-
   415230   tle cleaner as you follow
            along
```

```
Step 5:
4 × 50 = 320

   123450
    × 543
---------
   415230
     320+
```

```
Step 10:
4 × 34 = 224

   123450
    × 543
---------
   415230
     320+
   224+++
```

```
Step 11:
4 × 12 = 52

   123450
    × 543
---------
   415230
     320+
   224+++
  52+++++
```

```
Step 12:

   123450
    × 543
---------
   415230
  543120+
```

Step 13:
5 × 50 = 410

```
  123450
   × 543
--------
  415230
 543120+
    410+
```

Step 14:
5 × 34 = 302

```
  123450
   × 543
--------
  415230
 543120+
    410+
  302+++
```

Step 15:
5 × 12 = 104

```
  123450
   × 543
--------
  415230
 543120+
    410+
  302+++
104+++++
```

Step 20:

```
  123450
   × 543
--------
  415230
 543120+
1111010+
```

Step 21:

```
   123450
    × 543
---------
121351430
```

In multiplying two numbers, you get the amount of digits of the first number, *x*, and the amount of digits of the second number, *y*, the number of steps is, from smallest to largest:

(ceiling($x \div 2$) × *y*) + 1 — if you don't sum at every round, or
(ceiling($x \div 2$) × *y*) + *y* + 1 — if you sum at the end of every round
($x \times y$) + 1 — this is the traditional way, going digit by digit individually

The larger the number, the greater is the advantage of this technique; let's compare the number of steps for each of the three methods, for numbers up to 20 12 digits:

x \ y	1 1	2 2	3 3	4 4	5 5	10 6	11 7	12 8	13 9	14 10	15 11	20 12
1 1	2 2 3 2 2 2											
2 2	2 2 3 3 3 3	3 3 5 5 5 5										
3 3	3 3 4 4 4 4	5 5 11 7 11 7	11 7 14 10 14 10									
4 4	3 3 4 4 5 5	5 5 11 7 13 9	11 7 14 10 21 13	13 9 21 13 25 17								
5 5	4 4 5 5 10 6	11 7 13 9 15 11	14 10 21 13 24 16	21 13 25 17 33 21	24 16 33 21 42 26							
10 6	4 4 5 5 11 7	11 7 13 9 21 13	14 10 21 13 31 19	21 13 25 17 41 25	24 16 33 21 51 31	31 19 41 25 101 37						
11 7	5 5 10 6 12 8	13 9 15 11 23 15	21 13 24 16 34 22	25 17 33 21 45 29	33 21 42 26 100 36	41 25 51 31 111 43	45 29 100 36 122 50					
12 8	5 5 10 6 13 9	13 9 15 11 25 17	21 13 24 16 41 25	25 17 33 21 53 33	33 21 42 26 105 41	41 25 51 31 121 49	45 29 100 36 133 57	53 33 105 41 145 65				
13 9	10 6 11 7 14 10	15 11 21 13 31 19	24 16 31 19 44 28	33 21 41 25 101 37	42 26 51 31 114 46	51 31 101 37 131 55	100 36 111 43 144 64	105 41 121 49 201 73	114 46 131 55 214 82			
14 10	10 6 11 7 15 11	15 11 21 13 33 21	24 16 31 19 51 31	33 21 41 25 105 41	42 26 51 31 123 51	51 31 101 37 141 61	100 36 111 43 155 71	105 41 121 49 213 81	114 46 131 55 231 91	123 51 141 60 245 101		

15 11	11 7 12 8 20 12	21 13 23 15 35 23	31 19 34 22 54 34	41 25 45 29 113 45	51 31 100 36 132 56	101 37 111 43 151 67	111 43 122 50 210 78	121 49 133 57 225 89	131 55 144 64 244 100	141 61 155 71 303 111	151 67 210 78 322 122	
20 12	11 7 12 8 21 13	21 13 23 15 41 25	31 19 34 22 101 37	41 25 45 29 121 49	51 31 100 36 141 61	101 37 111 43 201 73	111 43 122 50 221 85	121 49 133 57 241 97	131 55 144 64 301 109	141 61 155 71 321 121	151 67 210 78 341 133	201 73 221 85 401 145

When you analyse this table, you can clearly see that even though sezimal numbers have more digits, the six × nif technique makes multiplication faster, in comparison to traditional decimal multiplication; the largest number with 20 12 sezimal digits is 555'555'555'555 2,176,782,335, 14 10 decimal digits; if you needed to multiply this by another number with 3 digits, in either base, it would take you 51 31 steps for the decimal version, but only 31 19 for the sezimal version, but, 20 12 steps less, or 21,54% 38.71% fewer steps, a significant improvement;

For smaller numbers, say, 4 × 4 digits, the improvement is from 25 17 steps for decimal digit by digit method to just 13 9 for the six × nif method, 12 8 steps less, a 24,54% 47.06% decrease;

Multiplying in decimal the same numbers we did above, 123'450 × 543, decimal 11,190 × 207, would require 24 16 steps instead of 21 13, and we could have done it in just 13 9, 23,43% 43.75% fewer steps;