



The Dozenal Society of Great Britain

ADDITION TABLE, BASE TWELVE

7 = ten and ε = eleven

+	1	2	3	4	5	6	7	8	9	7	ε
1	2	3	4	5	6	7	8	9	7	ε	10
2	3	4	5	6	7	8	9	7	ε	10	11
3	4	5	6	7	8	9	7	ε	10	11	12
4	5	6	7	8	9	7	ε	10	11	12	13
5	6	7	8	9	7	ε	10	11	12	13	14
6	7	8	9	7	ε	10	11	12	13	14	15
7	8	9	7	ε	10	11	12	13	14	15	16
8	9	7	ε	10	11	12	13	14	15	16	17
9	7	ε	10	11	12	13	14	15	16	17	18
7	ε	10	11	12	13	14	15	16	17	18	19
ε	10	11	12	13	14	15	16	17	18	19	17
10	11	12	13	14	15	16	17	18	19	17	1ε

MULTIPLICATION TABLE, BASE TWELVE

7 = ten and ε = eleven

x	1	2	3	4	5	6	7	8	9	7	ε	10
1	1	2	3	4	5	6	7	8	9	7	ε	10
2	2	4	6	8	7	10	12	14	16	18	17	20
3	3	6	9	10	13	16	19	20	23	26	29	30
4	4	8	10	14	18	20	24	28	30	34	38	40
5	5	7	13	18	21	26	2ε	34	39	42	47	50
6	6	10	16	20	26	30	36	40	46	50	56	60
7	7	12	19	24	2ε	36	41	48	53	57	65	70
8	8	14	20	28	34	40	48	54	60	68	74	80
9	9	16	23	30	39	46	53	60	69	76	83	90
7	7 <td>18</td> <td>26</td> <td>34</td> <td>42</td> <td>50</td> <td>57</td> <td>68</td> <td>76</td> <td>84</td> <td>92</td> <td>70</td>	18	26	34	42	50	57	68	76	84	92	70
ε	ε	17	29	38	47	56	65	74	83	92	71	ε0
10	10	20	30	40	50	60	70	80	90	70	ε0	100

Converting from decimal to dozenal.

Integers (whole numbers)

Example 1998

Divide by 12

$$1998/12 = 166 \text{ with remainder } 6$$

Divide 166 by 12

$$166/12 = 13 \text{ with remainder } 10$$

Divide by 12

$$13/12 = 1 \text{ remainder } 1$$

We need a symbol for ten and one for eleven (I use ζ for ten and ε for eleven)
and rewriting the **10** above as ζ , we have:

$$1998 = \mathbf{11\zeta6}.$$

Another example: 2031

$$2031 / 12 = 169 \text{ remainder } 3$$

$$169 / 12 = 14 \text{ remainder } 1$$

$$14 / 12 = 1 \text{ remainder } 2$$

$$2031 = \mathbf{1213}$$

The sequence of numbers in dozenal is:

1 2 3 4 5 6 7 8 9 ζ ε 10 11 12 13 14 15 16 17 18 19 1 ζ 1 ε 20...

and the dozens:

10 12 30 40 50 60 70 80 90 ζ 0 ε 0 100.

Example of addition:

$$1 + 9 = \zeta$$

$$4 + 8 = 10$$

$$5 + 6 = \varepsilon$$

and of multiplication:

$$2 \times 6 = 10$$

$$3 \times 4 = 10$$

$$2 \times 5 = \zeta$$

$$2 \times \varepsilon = 1\zeta$$

