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A reconstruction of Regiomontanus's table of tangents (1490)

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A reconstruction of
Regiomontanus's table of tangents
(1490)

Denis Roegel

2 September 2021

(last version: 2 September 2021)

Introduction

This document gives exact (modern) reconstructions of Johannes Regiomontanus's table of tangents published in 1490 [1] (figure 1).

I am providing two reconstructions, one (I) with truncated values, the second (II) with rounded values, but Regiomontanus's values were actually computed from his great sexagesimal table, by dropping two digits, rounding, then dividing, as explained in my survey.

The context of this table and details of the construction are found in my separate survey [2].

Tabula Secunda

Numerus		Numerus		Numerus	
0		0		0	
0	00000	31	60086	61	180402
1	1745	32	62486	62	188075
2	3492	33	64940	63	196263
3	5240	34	67452	64	205034
4	6992	35	70022	65	214450
5	8748	36	72654	66	224607
6	10511	37	75356	67	235583
7	12278	38	78129	68	247513
8	14053	39	80978	69	260511
9	15838	40	83909	70	274753
10	17633	41	86929	71	290422
11	19439	42	90040	72	307767
12	21256	43	93254	73	327088
13	23087	44	96571	74	348748
14	24932	45	100000	75	373211
15	26794	46	103551	76	401089
16	28674	47	107236	77	433148
17	30573	48	111062	78	470453
18	32492	49	115037	79	514438
19	34433	50	119177	80	567118
20	36396	51	123491	81	631377
21	38387	52	127994	82	711569
22	40402	53	132704	83	814456
23	42448	54	137639	84	951387
24	44522	55	142813	85	1143131
25	46631	56	148253	86	1430203
26	48772	57	153987	87	1908217
27	50952	58	160035	88	2863563
28	53170	59	166429	89	5729796
29	55432	60	173207	90	Infinita
30	57734				

Figure 1: Excerpt of Regiomontanus's table of tangents [1] (1490) (source: The Budapest University of Technology and Economics, 85.211, www.manuscriptorium.com).

References

- [1] Johannes Regiomontanus. *Tabule directionum profectionumque famosissimi viri Magistri Joannis Germani de Regiomonte in nativitatibus multum utiles*. Augsburg: Erhard Ratdolt, 1490.
- [2] Denis Roegel. A survey of the main fundamental European trigonometric tables printed in the 15th and 16th centuries. Technical report, LORIA, Nancy, 2021.

Tabula Fecunda (I)

Numerus		Numerus		Numerus	
G		G		G	
0	00000	31	60086	61	180404
1	1745	32	62486	62	188072
2	3492	33	64940	63	196261
3	5240	34	67450	64	205030
4	6992	35	70020	65	214450
5	8748	36	72654	66	224603
6	10510	37	75355	67	235585
7	12278	38	78128	68	247508
8	14054	39	80978	69	260508
9	15838	40	83909	70	274747
10	17632	41	86928	71	290421
11	19438	42	90040	72	307768
12	21255	43	93251	73	327085
13	23086	44	96568	74	348741
14	24932	45	99999	75	373205
15	26794	46	103553	76	401078
16	28674	47	107236	77	433147
17	30573	48	111061	78	470463
18	32491	49	115036	79	514455
19	34432	50	119175	80	567128
20	36397	51	123489	81	631375
21	38386	52	127994	82	711536
22	40402	53	132704	83	814434
23	42447	54	137638	84	951436
24	44522	55	142814	85	1143005
25	46630	56	148256	86	1430066
26	48773	57	153986	87	1908113
27	50952	58	160033	88	2863625
28	53170	59	166427	89	5728996
29	55430	60	173205	90	Infinitum
30	57735				

Tabula Fecunda (II)

Numerus		Numerus		Numerus	
G		G		G	
0	00000	31	60086	61	180405
1	1746	32	62487	62	188073
2	3492	33	64941	63	196261
3	5241	34	67451	64	205030
4	6993	35	70021	65	214451
5	8749	36	72654	66	224604
6	10510	37	75355	67	235585
7	12278	38	78129	68	247509
8	14054	39	80978	69	260509
9	15838	40	83910	70	274748
10	17633	41	86929	71	290421
11	19438	42	90040	72	307768
12	21256	43	93252	73	327085
13	23087	44	96569	74	348741
14	24933	45	100000	75	373205
15	26795	46	103553	76	401078
16	28675	47	107237	77	433148
17	30573	48	111061	78	470463
18	32492	49	115037	79	514455
19	34433	50	119175	80	567128
20	36397	51	123490	81	631375
21	38386	52	127994	82	711537
22	40403	53	132704	83	814435
23	42447	54	137638	84	951436
24	44523	55	142815	85	1143005
25	46631	56	148256	86	1430067
26	48773	57	153986	87	1908114
27	50953	58	160033	88	2863625
28	53171	59	166428	89	5728996
29	55431	60	173205	90	Infinitum
30	57735				