CARLOS RODRIGUEZ

EX-ASTRONOMO DEL OBSERVATORIO DE TACUBAYA

TABLAS NUMERICAS

DE CUATRO DECIMALES

1931

MEXICO, D. F.

TABLAS NUMÉRICAS

DE

CUATRO DECIMALES

CALCULADAS
POR

CARLOS RODRIGUEZ
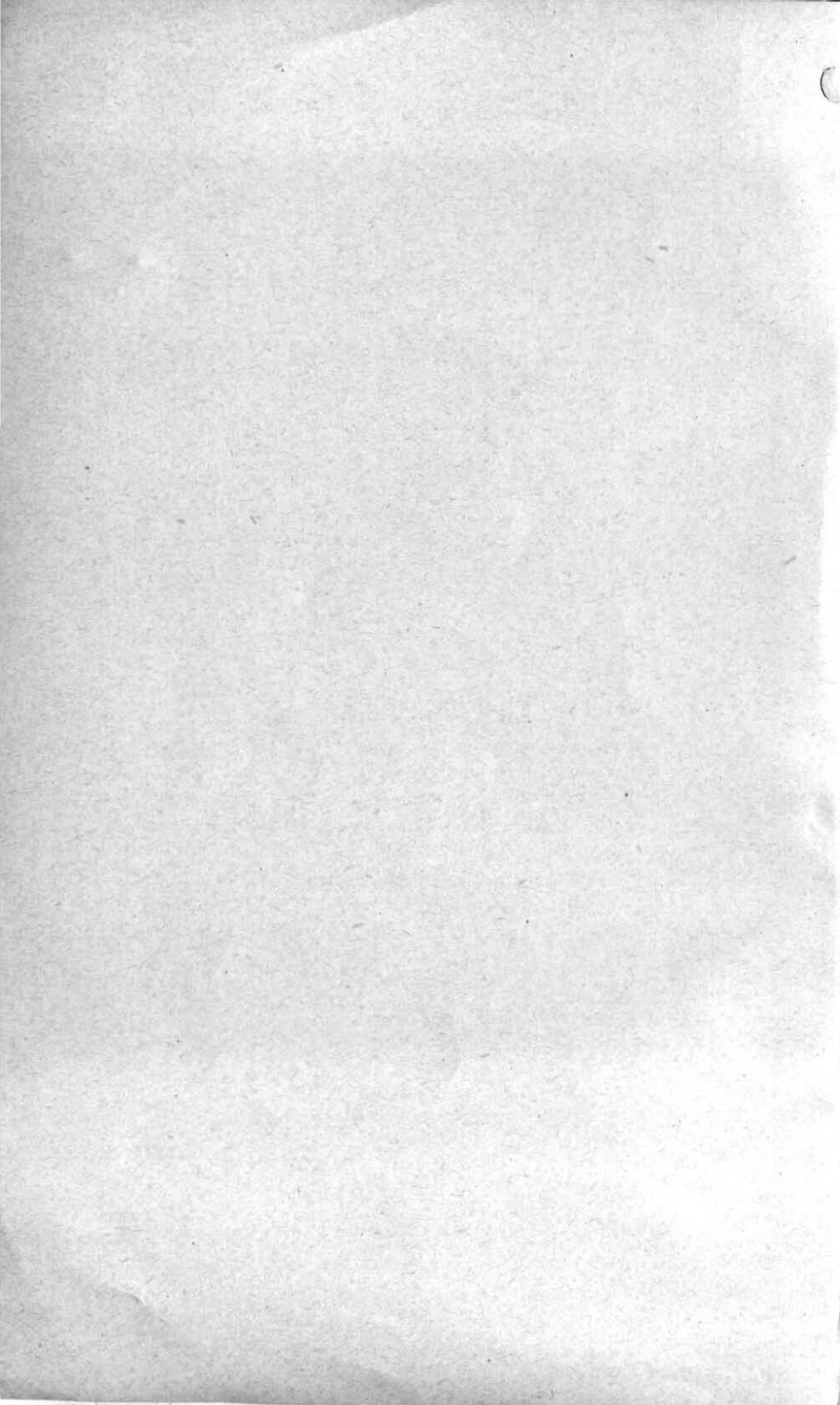
Astrónomo
del Observatorio de Tacubaya

MEXICO

1927

USO DE LAS TABLAS

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1.—El logaritmo vulgar de un número es la potencia a la que hay que elevar 10, para tener el número dado.

El uso de los logaritmos en los cálculos numéricos, facilita la multiplicación, división, elevación a potencias y extracción de raíces, substituyendo a dichas operaciones las de adición, substracción, multiplicación y división, respectivamente.

El logaritmo de un producto es igual a la suma de los logaritmos de los factores.

El logaritmo de un cociente es igual al logaritmo del dividendo, menos el logaritmo del divisor.

El logaritmo de la potencia de un número, es igual al logaritmo del número multiplicado por el exponente de la potencia.

El logaritmo de la raíz de un número, es igual al logaritmo del número dividido por el índice del radical.

2.—Un logaritmo consta generalmente de un número entero y de una parte decimal. La parte entera se llama *característica*. La parte decimal se llama *mantisa*.

Las tablas de logaritmos de los números dan únicamente las mantisas de los logaritmos.

La característica de un logaritmo se encuentra por las siguientes reglas:

La característica de un número mayor que 1 es una unidad menor que el número de cifras de que consta la parte entera del número.

EJEMPLO:

Característica de log.	3492	es	3,
,,	,, ,, 349.2	,,	2,
,,	,, ,, 34.92	,,	1,
,,	,, ,, 3.492	,,	0.

La característica del logaritmo de un número menor que la unidad, reducido a la forma de fracción decimal, es negativa y

una unidad mayor que el número de ceros que siguen inmediatamente al punto decimal.

EJEMPLO:

Característica de 0.4718   es —1,
    ,,   ,, 0.04718 ,, —2,
    ,,   ,, 0.004718 ,, —3.

En la práctica es preferible no usar características negativas y se substituye a éstas sus complementos a 10.

La característica complementaria de un número menor que 1 es tantas unidades menor que 9, como ceros hay entre el punto decimal y la primera cifra significativa.

EJEMPLO:

Característica de 0.4718   es 9,
    ,,   ,, 0.04718 ,, 8,
    ,,   ,, 0.004718 ,, 7.

3.—*Encontrar el logaritmo de un número de cuatro cifras.*

En la primera columna de la izquierda (págs. 2 y 3) se buscarán las dos primeras cifras del número; la tercera cifra se encontrará en la primera o última línea horizontal. A la mantisa que se encuentra en la línea horizontal de las dos primeras cifras, y en la columna vertical correspondiente a la tercera cifra, se añadirá la parte proporcional correspondiente a la cuarta cifra, que se encuentra sobre la misma horizontal, en una de las columnas marcadas P. P. Antepóngase a esta suma la característica correspondiente al número dado.

EJEMPLO:

Encontrar los logaritmos de 36.57 y de 0.7528 (págs. 2 y 3.)

        365 5623
        En la columna 7 de P. P...   ˙ 8
                                      ————
        log. 36.57 .... 1.5631
        752 8762
        En la columna 8 de P. P....   5
                                      ————
        log. 0.7528 .... 9.8767

4.—*Encontrar el número a que corresponde un logaritmo o sea su anti-logaritmo.*

Con la mantisa como argumento se entra en la tabla de anti-

logaritmos (págs. 24 y 25), procediendo de igual manera que en el caso anterior. El punto decimal se colocará en el lugar indicado por la característica.

EJEMPLO:

Encontrar los números correspondientes a los logaritmos 2.3418 y 8.5143 (págs. 24 y 25.)

3410	2193
P. P. por 8	4
anti-log. 2.3418	219.7
5140	3266
P. P. por 3	2
anti-log. 8.5143	0.03268

5.—*Encontrar el logaritmo del seno, coseno, tangente, etc., de un ángulo dado.*

En la primera columna de la izquierda (págs. 6 a 9) se encontrarán los grados, y en la primera línea horizontal superior, las decenas de minutos. Al logaritmo que se encuentra en la intersección de la línea horizontal de los grados con la columna vertical correspondiente a las decenas de minutos, se agregará o quitará, según el caso, la parte proporcional correspondiente a los minutos restantes, que se encontrará en la misma línea horizontal, en la tabla marcada P. P. y bajo la cifra correspondiente a los minutos.

EJEMPLO:

Encontrar los logaritmos del seno de 39°34′ y de cotangente de 40°25′. (Págs. 6 y 9.)

log sen 39°30′	9.8035
parte proporcional por 4′	6
log sen 39°34′	9.8041
log cot 40°20′	0.0711
parte proporcional por 5′.	—13
log cot 40°25′	0.0698

Si el ángulo dado está entre 45° y 90° se encontrará el argumento en la columna de la derecha y en la línea horizontal inferior, procediendo en lo demás como antes.

EJEMPLO:

Encontrar los logaritmos de cos 57°26′ y de tang 60°22′. (Págs. 7 y 8.)

```
log cos  57°20′................. 9.7322
P. P. por 6′.................    —12
                               ───────
log cos  57°26′ ,............... 9.7310

log tang 60°20′................. 0.2444
P. P. por 2′.................      6
                               ───────
log tang 60°22′................. 0.2450
```

Cuando el ángulo es mayor que 90° y menor que 180° se tomará el suplemento a 180° y de este ángulo se buscarán los logaritmos de las funciones trigonométricas, teniendo cuidado de poner una *n* en seguida de cada logaritmo de coseno, tangente y cotangente, para indicar que corresponde a un número negativo. Si el ángulo se encuentra entre 180° y 270°, bastará restarle 180° y tomar los logaritmos de las funciones trigonométricas correspondientes a este ángulo, cuidando de anotar como negativo el seno y coseno. Por último, si el ángulo se encuentra entre 270° y 360° se tomará el suplemento a 360° y de éste se buscarán los logaritmos de las funciones trigonométricas recordando que el seno, la tangente y la cotangente son entonces negativos.

6.—Si en lugar del logaritmo de una función trigonométrica se desea el valor natural, se encontrará en la tabla correspondiente (págs. 10 a 15) procediendo de igual manera que en el caso anterior.

7.—Cuando el ángulo es pequeño, la variación de log sen y log tang no es uniforme, por cuyo motivo la interpolación por partes proporcionales es ineficaz.

En este caso, se calculan log sen y log tang con ayuda de la tabla de Logaritmo Arco (págs. 4 y 5) y de las pequeñas tablas que dan las correcciones S y T teniéndose entonces:

$$\log \text{sen} \ x = \log x — S,$$
$$\log \text{tang} \ x = \log x + T.$$

El argumento de las tablas es el arco expresado en minutos y los valores tabulados son las mantisas de los logaritmos correspondientes. La característica se determina por las indicaciones puestas abajo de la tabla o bien por la siguiente regla: En la primera parte de la tabla (limitada por una línea quebrada) la característica es la correspondiente al número de

*minutos considerados como diez milésimos; en la parte restante la caracte-
rística es la correspondiente al número de minutos considerados como milé-
simos.*

EJEMPLO:

Determinar log sen y log tang de 4°35′.5 = 275′.5

log 275′ 8.9031

P. P. por 0′.5..................   8

log 275′.5............................. 8.9039

S............................ : —5

T............................   9

log sen 4°35′.5........................... 8.9034

log tang 4°35′.5........................... 8.9048

Estas operaciones se pueden ejecutar mentalmente por lo que
el uso de la tabla es sencillísimo.

Para encontrar el arco, dado log sen o log tang, se tendrá en
cuenta que

log Arco = log sen + S,
log Arco = log tang — T.

Una vez encontrado log Arco se buscará en la tabla a qué nú-
mero de minutos corresponde.

8.—Las tablas restantes son tan sencillas que no es necesario
dar indicaciones especiales para su uso.
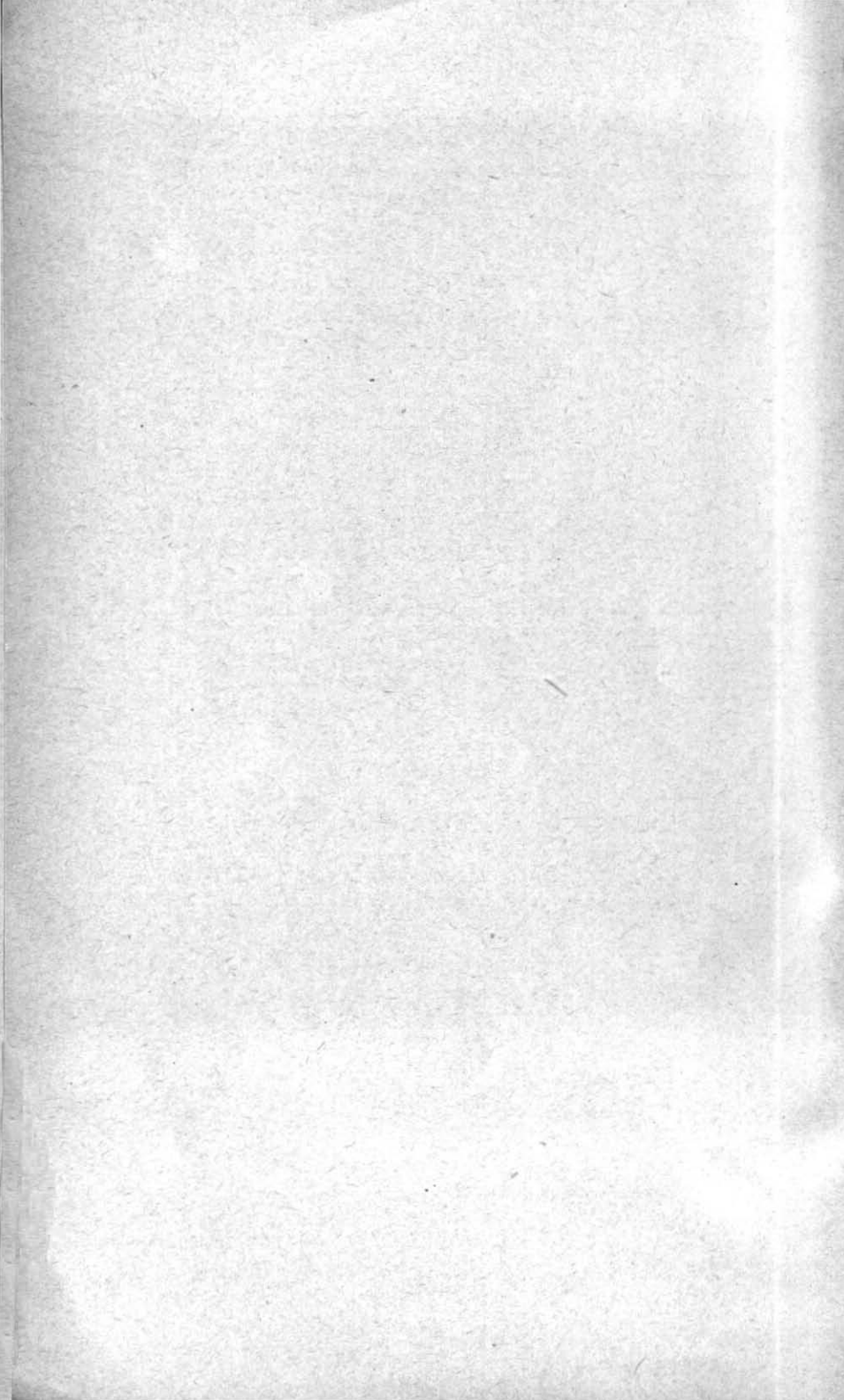
TABLAS

	O	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
10	0000	0043	0086	0128	0170	0212	0253	0294	0334	0374	4	8	12	17	21	25	29	33	37
11	0414	0453	0492	0531	0569	0607	0645	0682	0719	0755	4	8	11	15	19	23	26	30	34
12	0792	0828	0864	0899	0934	0969	1004	1038	1072	1106	3	7	10	14	17	21	24	28	31
13	1139	1173	1206	1239	1271	1303	1335	1367	1399	1430	3	6	10	13	16	19	23	26	29
14	1461	1492	1523	1553	1584	1614	1644	1673	1703	1732	3	6	9	12	15	18	21	24	27
15	1761	1790	1818	1847	1875	1903	1931	1959	1987	2014	3	6	8	11	14	17	20	22	25
16	2041	2068	2095	2122	2148	2175	2201	2227	2253	2279	3	5	8	11	13	16	18	21	24
17	2304	2330	2355	2380	2405	2430	2455	2480	2504	2529	2	5	7	10	12	15	17	20	22
18	2553	2577	2601	2625	2648	2672	2695	2718	2742	2765	2	5	7	9	12	14	16	19	21
19	2788	2810	2833	2856	2878	2900	2923	2945	2967	2989	2	4	7	9	11	13	16	18	20
20	3010	3032	3054	3075	3096	3118	3139	3160	3181	3201	2	4	6	8	11	13	15	17	19
21	3222	3243	3263	3284	3304	3324	3345	3365	3385	3404	2	4	6	8	10	12	14	16	18
22	3424	3444	3464	3483	3502	3522	3541	3560	3579	3598	2	4	6	8	10	12	14	15	17
23	3617	3636	3655	3674	3692	3711	3729	3747	3766	3784	2	4	6	7	9	11	13	15	17
24	3802	3820	3838	3856	3874	3892	3909	3927	3945	3962	2	4	5	7	9	11	12	14	16
25	3979	3997	4014	4031	4048	4065	4082	4099	4116	4133	2	3	5	7	9	10	12	14	15
26	4150	4166	4183	4200	4216	4232	4249	4265	4281	4298	2	3	5	7	8	10	11	13	15
27	4314	4330	4346	4362	4378	4393	4409	4425	4440	4456	2	3	5	6	8	9	11	13	14
28	4472	4487	4502	4518	4533	4548	4564	4579	4594	4609	2	3	5	6	8	9	11	12	14
29	4624	4639	4654	4669	4683	4698	4713	4728	4742	4757	1	3	4	6	7	9	10	12	13
30	4771	4786	4800	4814	4829	4843	4857	4871	4886	4900	1	3	4	6	7	9	10	11	13
31	4914	4928	4942	4955	4969	4983	4997	5011	5024	5038	1	3	4	6	7	8	10	11	12
32	5051	5065	5079	5092	5105	5119	5132	5145	5159	5172	1	3	4	5	7	8	9	11	12
33	5185	5198	5211	5224	5237	5250	5263	5276	5289	5302	1	3	4	5	6	8	9	10	12
34	5315	5328	5340	5353	5366	5378	5391	5403	5416	5428	1	3	4	5	6	8	9	10	11
35	5441	5453	5465	5478	5490	5502	5514	5527	5539	5551	1	2	4	5	6	7	9	10	11
36	5563	5575	5587	5599	5611	5623	5635	5647	5658	5670	1	2	4	5	6	7	8	10	11
37	5682	5694	5705	5717	5729	5740	5752	5763	5775	5786	1	2	3	5	6	7	8	9	10
38	5798	5809	5821	5832	5843	5855	5866	5877	5888	5899	1	2	3	5	6	7	8	9	10
39	5911	5922	5933	5944	5955	5966	5977	5988	5999	6010	1	2	3	4	5	7	8	9	10
40	6021	6031	6042	6053	6064	6075	6085	6096	6107	6117	1	2	3	4	5	6	8	9	10
41	6128	6138	6149	6160	6170	6180	6191	6201	6212	6222	1	2	3	4	5	6	7	8	9
42	6232	6243	6253	6263	6274	6284	6294	6304	6314	6325	1	2	3	4	5	6	7	8	9
43	6335	6345	6355	6365	6375	6385	6395	6405	6415	6425	1	2	3	4	5	6	7	8	9
44	6435	6444	6454	6464	6474	6484	6493	6503	6513	6522	1	2	3	4	5	6	7	8	9
45	6532	6542	6551	6561	6571	6580	6590	6599	6609	6618	1	2	3	4	5	6	7	8	9
46	6628	6637	6646	6656	6665	6675	6684	6693	6702	6712	1	2	3	4	5	6	7	7	8
47	6721	6730	6739	6749	6758	6767	6776	6785	6794	6803	1	2	3	4	5	5	6	7	8
48	6812	6821	6830	6839	6848	6857	6866	6875	6884	6893	1	2	3	4	4	5	6	7	8
49	6902	6911	6920	6928	6937	6946	6955	6964	6972	6981	1	2	3	4	4	5	6	7	8
50	6990	6998	7007	7016	7024	7033	7042	7050	7059	7067	1	2	3	3	4	5	6	7	8
51	7076	7084	7093	7101	7110	7118	7126	7135	7143	7152	1	2	3	3	4	5	6	7	8
52	7160	7168	7177	7185	7193	7202	7210	7218	7226	7235	1	2	2	3	4	5	6	7	7
53	7243	7251	7259	7267	7275	7284	7292	7300	7308	7316	1	2	2	3	4	5	6	6	7
54	7324	7332	7340	7348	7356	7364	7372	7380	7388	7396	1	2	2	3	4	5	5	6	7
	O	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9

La tabla de antilogaritmos se encuentra en las páginas 24 y 25.

2

LOGARITMOS.

	O	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
55	7404	7412	7419	7427	7435	7443	7451	7459	7466	7474	1	2	2	3	4	5	5	6	7
56	7482	7490	7497	7505	7513	7520	7528	7536	7543	7551	1	2	2	3	4	5	5	6	7
57	7559	7566	7574	7582	7589	7597	7604	7612	7619	7627	1	2	2	3	4	5	5	6	7
58	7634	7642	7649	7657	7664	7672	7679	7686	7694	7701	1	1	2	3	4	4	5	6	7
59	7709	7716	7723	7731	7738	7745	7752	7760	7767	7774	1	1	2	3	4	4	5	6	7
60	7782	7789	7796	7803	7810	7818	7825	7832	7839	7846	1	1	2	3	4	4	5	6	6
61	7853	7860	7868	7875	7882	7889	7896	7903	7910	7917	1	1	2	3	4	4	5	6	6
62	7924	7931	7938	7945	7952	7959	7966	7973	7980	7987	1	1	2	3	3	4	5	6	6
63	7993	8000	8007	8014	8021	8028	8035	8041	8048	8055	1	1	2	3	3	4	5	5	6
64	8062	8069	8075	8082	8089	8096	8102	8109	8116	8122	1	1	2	3	3	4	5	5	6
65	8129	8136	8142	8149	8156	8162	8169	8176	8182	8189	1	1	2	3	3	4	5	5	6
66	8195	8202	8209	8215	8222	8228	8235	8241	8248	8254	1	1	2	3	3	4	5	5	6
67	8261	8267	8274	8280	8287	8293	8299	8306	8312	8319	1	1	2	3	3	4	5	5	6
68	8325	8331	8338	8344	8351	8357	8363	8370	8376	8382	1	1	2	3	3	4	4	5	6
69	8388	8395	8401	8407	8414	8420	8426	8432	8439	8445	1	1	2	2	3	4	4	5	6
70	8451	8457	8463	8470	8476	8482	8488	8494	8500	8506	1	1	2	2	3	4	4	5	6
71	8513	8519	8525	8531	8537	8543	8549	8555	8561	8567	1	1	2	2	3	4	4	5	5
72	8573	8579	8585	8591	8597	8603	8609	8615	8621	8627	1	1	2	2	3	4	4	5	5
73	8633	8639	8645	8651	8657	8663	8669	8675	8681	8686	1	1	2	2	3	4	4	5	5
74	8692	8698	8704	8710	8716	8722	8727	8733	8739	8745	1	1	2	2	3	4	4	5	5
75	8751	8756	8762	8768	8774	8779	8785	8791	8797	8802	1	1	2	2	3	3	4	5	5
76	8808	8814	8820	8825	8831	8837	8842	8848	8854	8859	1	1	2	2	3	3	4	5	5
77	8865	8871	8876	8882	8887	8893	8899	8904	8910	8915	1	1	2	2	3	3	4	4	5
78	8921	8927	8932	8938	8943	8949	8954	8960	8965	8971	1	1	2	2	3	3	4	4	5
79	8976	8982	8987	8993	8998	9004	9009	9015	9020	9025	1	1	2	2	3	3	4	4	5
80	9031	9036	9042	9047	9053	9058	9063	9069	9074	9079	1	1	2	2	3	3	4	4	5
81	9085	9090	9096	9101	9106	9112	9117	9122	9128	9133	1	1	2	2	3	3	4	4	5
82	9138	9143	9149	9154	9159	9165	9170	9175	9180	9186	1	1	2	2	3	3	4	4	5
83	9191	9196	9201	9206	9212	9217	9222	9227	9232	9238	1	1	2	2	3	3	4	4	5
84	9243	9248	9253	9258	9263	9269	9274	9279	9284	9289	1	1	2	2	3	3	4	4	5
85	9294	9299	9304	9309	9315	9320	9325	9330	9335	9340	1	1	2	2	3	3	4	4	5
86	9345	9350	9355	9360	9365	9370	9375	9380	9385	9390	1	1	2	2	3	3	4	4	5
87	9395	9400	9405	9410	9415	9420	9425	9430	9435	9440	0	1	1	2	2	3	3	4	4
88	9445	9450	9455	9460	9465	9469	9474	9479	9484	9489	0	1	1	2	2	3	3	4	4
89	9494	9499	9504	9509	9513	9518	9523	9528	9533	9538	0	1	1	2	2	3	3	4	4
90	9542	9547	9552	9557	9562	9566	9571	9576	9581	9586	0	1	1	2	2	3	3	4	4
91	9590	9595	9600	9605	9609	9614	9619	9624	9628	9633	0	1	1	2	2	3	3	4	4
92	9638	9643	9647	9652	9657	9661	9666	9671	9675	9680	0	1	1	2	2	3	3	4	4
93	9685	9689	9694	9699	9703	9708	9713	9717	9722	9727	0	1	1	2	2	3	3	4	4
94	9731	9736	9741	9745	9750	9754	9759	9763	9768	9773	0	1	1	2	2	3	3	4	4
95	9777	9782	9786	9791	9795	9800	9805	9809	9814	9818	0	1	1	2	2	3	3	4	4
96	9823	9827	9832	9836	9841	9845	9850	9854	9859	9863	0	1	1	2	2	3	3	4	4
97	9868	9872	9877	9881	9886	9890	9894	9899	9903	9908	0	1	1	2	2	3	3	4	4
98	9912	9917	9921	9926	9930	9934	9939	9943	9948	9952	0	1	1	2	2	3	3	4	4
99	9956	9961	9965	9969	9974	9978	9983	9987	9991	9996	0	1	1	2	2	3	3	4	4
	O	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9

La tabla de antilogaritmos se encuentra en las páginas 24 y 25.

LOGARITMO ARCO P. P.

	0'	1'	2'	3'	4'	5'	6'	7'	8'	9'	1	2	3	4	5	6	7	8	9	Arco	S	T	Log. Arco
10	4637	4680	4723	4766	4808	4849	4890	4931	4971	5012	4	8	12	17	21	25	29	33	37	100'	1	1	8.464
11	5051	5090	5129	5168	5206	5244	5282	5319	5356	5393	4	8	11	15	19	23	26	30	34	110	1	1	8.505
12	5429	5465	5501	5536	5571	5606	5641	5675	5709	5743	3	7	10	14	17	21	24	28	31	120	1	2	8.543
13	5777	5810	5843	5876	5908	5941	5973	6004	6036	6067	3	6	10	13	16	19	23	26	29	130	1	2	8.578
14	6099	6129	6160	6191	6221	6251	6281	6310	6340	6369	3	6	9	12	15	18	21	24	27	140	1	2	8.610
15	6398	6427	6456	6484	6512	6541	6569	6596	6624	6651	3	6	8	11	14	17	20	22	25	150	1	3	8.640
16	6678	6706	6732	6759	6786	6812	6838	6864	6890	6916	3	5	8	11	13	16	18	21	24	160	2	3	8.668
17	6942	6967	6993	7018	7043	7068	7092	7117	7141	7166	2	5	7	10	12	15	17	20	22	170	2	4	8.694
18	7190	7214	7238	7262	7285	7309	7332	7356	7379	7402	2	5	7	9	12	14	16	19	21	180	2	4	8.719
19	7425	7448	7470	7493	7515	7538	7560	7582	7604	7626	2	4	7	9	11	13	16	18	20	190	2	4	8.742
20	7648	7669	7691	7712	7734	7755	7776	7797	7818	7839	2	4	6	8	11	13	15	17	19	200'	2	5	8.765
21	7859	7880	7901	7921	7941	7962	7982	8002	8022	8042	2	4	6	8	10	12	14	16	18	210	3	5	8.786
22	8061	8081	8101	8120	8140	8159	8178	8198	8217	8236	2	4	6	8	10	12	14	15	17	220	3	6	8.806
23	8255	8273	8292	8311	8329	8348	8366	8385	8403	8421	2	4	6	7	9	11	13	15	17	230	3	6	8.825
24	8439	8457	8475	8493	8511	8529	8547	8564	8582	8599	2	4	5	7	9	11	12	14	16	240	4	7	8.844
25	8617	8634	8651	8668	8686	8703	8720	8737	8753	8770	2	3	5	7	9	10	12	14	15	250	4	8	8.862
26	8787	8804	8820	8837	8853	8870	8886	8902	8919	8935	2	3	5	7	8	10	11	13	15	260	4	8	8.879
27	8951	8967	8983	8999	9015	9031	9046	9062	9078	9093	2	3	5	6	8	9	11	13	14	270	4	9	8.895
28	9109	9124	9140	9155	9170	9186	9201	9216	9231	9246	2	3	5	6	8	9	11	12	14	280	5	10	8.911
29	9261	9276	9291	9306	9321	9335	9350	9365	9379	9394	1	3	4	6	7	9	10	12	13	290	5	10	8.926
30	9408	9423	9437	9452	9466	9480	9494	9509	9523	9537	1	3	4	6	7	9	10	11	13	300'	6	11	8.941
31	9551	9565	9579	9593	9607	9620	9634	9648	9662	9675	1	3	4	6	7	8	10	11	12	310	6	12	8.955
32	9689	9702	9716	9729	9743	9756	9769	9783	9796	9809	1	3	4	5	7	8	9	11	12	320	6	13	8.969
33	9822	9836	9849	9862	9875	9888	9901	9914	9926	9939	1	3	4	5	6	8	9	10	12	330	7	13	8.982
34	9952	9965	9978	9990	0003	0015	0028	0041	0053	0066	1	3	4	5	6	8	9	10	11	340	7	14	8.995
35	0078	0090	0103	0115	0127	0140	0152	0164	0176	0188	1	2	4	5	6	7	9	10	11	350	8	15	9.008
36	0200	0212	0224	0236	0248	0260	0272	0284	0296	0308	1	2	4	5	6	7	8	10	11	360	8	16	9.020
37	0319	0331	0343	0354	0366	0378	0389	0401	0412	0424	1	2	3	5	6	7	8	9	10	370	8	17	9.032
38	0435	0447	0458	0469	0481	0492	0503	0514	0526	0537	1	2	3	5	6	7	8	9	10	380	9	18	9.044
39	0548	0559	0570	0581	0592	0603	0614	0625	0636	0647	1	2	3	4	5	7	8	9	10	390	9	19	9.055
40	0658	0669	0680	0690	0701	0712	0723	0733	0744	0754	1	2	3	4	5	6	8	9	10	400'	10	20	9.066
41	0765	0776	0786	0797	0807	0818	0828	0839	0849	0859	1	2	3	4	5	6	7	8	9	410	10	21	9.077
42	0870	0880	0890	0901	0911	0921	0931	0942	0952	0962	1	2	3	4	5	6	7	8	9	420	11	22	9.087
43	0972	0982	0992	1002	1012	1022	1032	1042	1052	1062	1	2	3	4	5	6	7	8	9	430	11	23	9.097
44	1072	1082	1091	1101	1111	1121	1131	1140	1150	1160	1	2	3	4	5	6	7	8	9	440	12	24	9.107
45	1169	1179	1189	1198	1208	1217	1227	1236	1246	1255	1	2	3	4	5	6	7	8	9	450	12	25	9.117
46	1265	1274	1284	1293	1302	1312	1321	1330	1340	1349	1	2	3	4	5	6	7	7	8	460	13	26	9.126
47	1358	1367	1377	1386	1395	1404	1413	1422	1432	1441	1	2	3	4	5	5	6	7	8	470	14	27	9.136
48	1450	1459	1468	1477	1486	1495	1504	1513	1521	1530	1	2	3	4	4	5	6	7	8	480	14	28	9.145
49	1539	1548	1557	1566	1575	1583	1592	1601	1610	1618	1	2	3	4	4	5	6	7	8	490	15	30	9.154
50	1627	1636	1644	1653	1662	1670	1679	1687	1696	1704	1	2	3	3	4	5	6	7	8	500'	15	31	9.163
51	1713	1721	1730	1738	1747	1755	1764	1772	1781	1789	1	2	3	3	4	5	6	7	8	510	16	32	9.171
52	1797	1806	1814	1822	1831	1839	1847	1855	1864	1872	1	2	2	3	4	5	6	7	7	520	17	33	9.180
53	1880	1888	1896	1905	1913	1921	1929	1937	1945	1953	1	2	2	3	4	5	6	6	7	530	17	35	9.188
54	1961	1969	1977	1985	1993	2001	2009	2017	2025	2033	1	2	2	3	4	5	6	6	7	540	18	36	9.196

Arco	Característica
entre 0'.3 y 3'.4	6
entre 3.4 y 34.4	7
entre 34.4 y 343.8	8
entre 343.8 y 90°	9

$$\log \operatorname{sen} x = \log x - S$$

$$\log \operatorname{tang} x = \log x + T$$

LOGARITMO ARCO P. P.

	0′	1′	2′	3′	4′	5′	6′	7′	8′	9′	1	2	3	4	5	6	7	8	9	Arco	S	T	Log. Arco
55	2041	2049	2057	2065	2072	2080	2088	2096	2104	2111	1	2	2	3	4	5	5	6	7	550′	19	37	9.204
56	2119	2127	2135	2142	2150	2158	2165	2173	2181	2188	1	2	2	3	4	5	5	6	7	560	19	39	9.212
57	2196	2204	2211	2219	2226	2234	2241	2249	2257	2264	1	2	2	3	4	5	5	6	7	570	20	40	9.220
58	2272	2279	2286	2294	2301	2309	2316	2324	2331	2338	1	1	2	3	4	4	5	6	7	580	21	41	9.227
59	2346	2353	2360	2368	2375	2382	2390	2397	2404	2412	1	1	2	3	4	4	5	6	7	590	21	43	9.235
60	2419	2426	2433	2440	2448	2455	2462	2469	2476	2483	1	1	2	3	4	4	5	6	6	600′	22	44	9.242
61	2491	2498	2505	2512	2519	2526	2533	2540	2547	2554	1	1	2	3	4	4	5	6	6	610	23	46	9.249
62	2561	2568	2575	2582	2589	2596	2603	2610	2617	2624	1	1	2	3	4	4	5	6	6	620	24	47	9.256
63	2631	2638	2644	2651	2658	2665	2672	2679	2685	2692	1	1	2	3	3	4	5	5	6	630	24	49	9.263
64	2699	2706	2713	2719	2726	2733	2740	2746	2753	2760	1	1	2	3	3	4	5	5	6	640	25	51	9.270
65	2766	2773	2780	2786	2793	2800	2806	2813	2820	2826	1	1	2	3	3	4	5	5	6	650	26	52	9.277
66	2833	2839	2846	2852	2859	2865	2872	2879	2885	2892	1	1	2	3	3	4	5	5	6	660	27	54	9.283
67	2898	2904	2911	2917	2924	2930	2937	2943	2950	2956	1	1	2	3	3	4	5	5	6	670	28	55	9.290
68	2962	2969	2975	2981	2988	2994	3001	3007	3013	3019	1	1	2	3	3	4	4	5	6	680	28	57	9.296
69	3026	3032	3038	3045	3051	3057	3063	3070	3076	3082	1	1	2	2	3	4	4	5	6	690	29	59	9.303
70	3088	3094	3101	3107	3113	3119	3125	3131	3138	3144	1	1	2	2	3	4	4	5	6	700′	30	61	9.309
71	3150	3156	3162	3168	3174	3180	3186	3192	3199	3205	1	1	2	2	3	4	4	5	5	710	31	62	9.315
72	3211	3217	3223	3229	3235	3241	3247	3253	3259	3225	1	1	2	2	3	4	4	5	5	720	32	64	9.321
73	3270	3276	3282	3288	3294	3300	3306	3312	3318	3324	1	1	2	2	3	4	4	5	5	730	33	66	9.327
74	3330	3335	3341	3347	3353	3359	3365	3370	3376	3382	1	1	2	2	3	4	4	5	5	740	34	68	9.333
75	3388	3394	3399	3405	3411	3417	3422	3428	3434	3440	1	1	2	2	3	3	4	5	5	750	35	70	9.339
76	3445	3451	3457	3463	3468	3474	3480	3485	3491	3497	1	1	2	2	3	3	4	5	5	760	35	72	9.345
77	3502	3508	3513	3519	3525	3530	3536	3541	3547	3553	1	1	2	2	3	3	4	4	5	770	36	73	9.350
78	3558	3564	3569	3575	3580	3586	3591	3597	3603	3608	1	1	2	2	3	3	4	4	5	780	37	75	9.356
79	3614	3619	3625	3630	3635	3641	3646	3652	3657	3663	1	1	2	2	3	3	4	4	5	790	38	77	9.361
80	3668	3674	3679	3684	3690	3695	3701	3706	3711	3717	1	1	2	2	3	3	4	4	5	800′	39	79	9.367
81	3722	3727	3733	3738	3744	3749	3754	3759	3765	3770	1	1	2	2	3	3	4	4	5	810	40	81	9.372
82	3775	3781	3786	3791	3797	3802	3807	3812	3818	3823	1	1	2	2	3	3	4	4	5	820	41	83	9.378
83	3828	3833	3838	3844	3849	3854	3859	3865	3870	3875	1	1	2	2	3	3	4	4	5	830	42	86	9.383
84	3880	3885	3890	3896	3901	3906	3911	3916	3921	3926	1	1	2	2	3	3	4	4	5	840	43	88	9.388
85	3931	3937	3942	3947	3952	3957	3962	3967	3972	3977	1	1	2	2	3	3	4	4	5	850	44	90	9.393
86	3982	3987	3992	3997	4002	4007	4012	4017	4022	4027	1	1	2	2	3	3	4	4	5	860	45	92	9.398
87	4032	4037	4042	4047	4052	4057	4062	4067	4072	4077	0	1	1	2	2	3	3	4	4	870	46	94	9.403
88	4082	4087	4092	4097	4102	4107	4112	4116	4121	4126	0	1	1	2	2	3	3	4	4	880	48	96	9.408
89	4131	4136	4141	4146	4151	4155	4160	4165	4170	4175	0	1	1	2	2	3	3	4	4	890	49	99	9.413
90	4180	4185	4189	4194	4199	4204	4209	4213	4218	4223	0	1	1	2	2	3	3	4	4	900′	50	101	9.418
91	4228	4232	4237	4242	4247	4251	4256	4261	4266	4270	0	1	1	2	2	3	3	4	4	910	51	103	9.423
92	4275	4280	4285	4289	4294	4299	4303	4308	4313	4317	0	1	1	2	2	3	3	4	4	920	52	105	9.428
93	4322	4327	4331	4336	4341	4345	4350	4355	4359	4364	0	1	1	2	2	3	3	4	4	930	53	108	9.432
94	4369	4373	4378	4382	4387	4392	4396	4401	4405	4410	0	1	1	2	2	3	3	4	4	940	54	110	9.437
95	4414	4419	4424	4428	4433	4437	4442	4446	4451	4455	0	1	1	2	2	3	3	4	4	950	55	113	9.441
96	4460	4464	4469	4474	4478	4483	4487	4492	4496	4500	0	1	1	2	2	3	3	4	4	960	57	115	9.446
97	4505	4509	4514	4518	4523	4527	4532	4536	4541	4545	0	1	1	2	2	3	3	4	4	970	58	117	9.450
98	4550	4554	4558	4563	4567	4572	4576	4580	4585	4589	0	1	1	2	2	3	3	4	4	980	59	120	9.455
99	4594	4598	4602	4607	4611	4615	4620	4624	4629	4633	0	1	1	2	2	3	3	3	4	990	60	122	9.459
	0′	1′	2′	3′	4′	5′	6′	7′	8′	9′	1	2	3	4	5	6	7	8	9	Arco	S	T	Log. Arco

Arco		Característica
entre	0′.3 y 3′.4	.6
entre	3.4 y 34.4	7
entre	34.4 y 343.8	8
entre	343.8 y 90°	9

$$\log \operatorname{sen} x = \log x - S$$

$$\log \operatorname{tang} x = \log x + T$$

LOGARITMO SENO   P. P.

	O'	10'	20'	30'	40'	50'	60'	
0°	—	7 4637	7.7648	7.9408	8.0658	8.1627	8.2419	**89°**
1	8.2419	8.3088	8.3668	8.4179	8.4637	8.5050	8.5428	88
2	8.5428	8.5776	8.6097	8.6397	8.6677	8.6940	8.7188	87
3	8.7188	8.7423	8.7645	8.7857	8.8059	8.8251	8.8436	86
4	8.8436	8.8613	8.8783	8.8946	8.9104	8.9256	8.9403	85
5	8.9403	8.9545	8.9682	8.9816	8.9945	9.0070	9.0192	84
6	9.0192	9.0311	9.0426	9.0539	9.0648	9.0755	9.0859	83
7	9.0859	9.0961	9.1060	9.1157	9.1252	9.1345	9.1436	82
8	9.1436	9.1525	9.1612	9.1697	9.1781	9.1863	9.1943	81
9	9.1943	9.2022	9.2100	9.2176	9.2251	9.2324	9.2397	80
10	9.2397	9.2468	9.2538	9.2606	9.2674	9.2740	9.2806	79
11	9.2806	9.2870	9.2934	9.2997	9.3058	9.3119	9.3179	78
12	9.3179	9.3238	9.3296	9.3353	9.3410	9.3466	9.3521	77
13	9.3521	9.3575	9.3629	9.3682	9.3734	9.3786	9.3837	76
14	9.3837	9.3887	9.3937	9.3986	9.4035	9.4083	9.4130	75
15	9.4130	9.4177	9.4223	9.4269	9.4314	9.4359	9.4403	74
16	9.4403	9.4447	9.4491	9.4533	9.4576	9.4618	9.4659	73
17	9.4659	9.4700	9.4741	9.4781	9.4821	9.4861	9.4900	72
18	9.4900	9.4939	9.4977	9.5015	9.5052	9.5090	9.5126	71
19	9.5126	9.5163	9.5199	9.5235	9.5270	9.5306	9.5341	70
20	9.5341	9.5375	9.5409	9.5443	9.5477	9.5510	9.5543	69
21	9.5543	9.5576	9.5609	9.5641	9.5673	9.5704	9.5736	68
22	9.5736	9.5767	9.5798	9.5828	9.5859	9.5889	9.5919	67
23	9.5919	9.5948	9.5978	9.6007	9.6036	9.6065	9.6093	66
24	9.6093	9.6121	9.6149	9.6177	9.6205	9.6232	9.6259	65
25	9.6259	9.6286	9.6313	9.6340	9.6366	9.6392	9.6418	64
26	9.6418	9.6444	9.6470	9.6495	9.6521	9.6546	9.6570	63
27	9.6570	9.6595	9.6620	9.6644	9.6668	9.6692	9.6716	62
28	9.6716	9.6740	9.6763	9.6787	9.6810	9.6833	9.6856	61
29	9.6856	9.6878	9.6901	9.6923	9.6946	9.6968	9.6990	60
30	9.6990	9.7012	9.7033	9.7055	9.7076	9.7097	9.7118	59
31	9.7118	9.7139	9.7160	9.7181	9.7201	9.7222	9.7242	58
32	9.7242	9.7262	9.7282	9.7302	9.7322	9.7342	9.7361	57
33	9.7361	9.7380	9.7400	9.7419	9.7438	9.7457	9.7476	56
34	9.7476	9.7494	9.7513	9.7531	9.7550	9.7568	9.7586	55
35	9.7586	9.7604	9.7622	9.7640	9.7657	9.7675	9.7692	54
36	9.7692	9.7710	9.7727	9.7744	9.7761	9.7778	9.7795	53
37	9.7795	9.7811	9.7828	9.7844	9.7861	9.7877	9.7893	52
38	9.7893	9.7910	9.7926	9.7941	9.7957	9.7973	9.7989	51
39	9.7989	9.8004	9.8020	9.8035	9.8050	9.8066	9.8081	50
40	9.8081	9.8096	9.8111	9.8125	9.8140	9.8155	9.8169	49
41	9.8169	9.8184	9.8198	9.8213	9.8227	9.8241	9.8255	48
42	9.8255	9.8269	9.8283	9.8297	9.8311	9.8324	9.8338	47
43	9.8338	9.8351	9.8365	9.8378	9.8391	9.8405	9.8418	46
44	9.8418	9.8431	9.8444	9.8457	9.8469	9.8482	9.8495	45
	60'	50'	40'	30'	20'	10'	O'	

Para encontrar logaritmo seno de ángulos pequeños debe usarse la tabla de Logaritmo Arco (págs. 4 y 5).

P. P.

1'	2'	3'	4'	5'	6'	7'	8'	9'
7	14	20	27	34	41	48	55	61
6	12	19	25	31	37	43	50	56
6	11	17	23	28	34	40	46	51
5	11	16	21	26	32	37	42	47
5	10	15	20	24	29	34	39	44
5	9	14	18	23	27	32	36	41
4	9	13	17	21	26	30	34	38
4	8	12	16	20	24	28	32	36
4	8	11	15	19	23	26	30	34
4	7	11	14	18	21	25	29	32
3	7	10	14	17	20	24	27	30
3	6	10	13	16	19	22	26	29
3	6	9	12	15	18	21	24	27
3	6	9	12	15	17	20	23	26
3	6	8	11	14	17	19	22	25
3	5	8	11	13	16	19	21	24
3	5	8	10	13	15	18	20	23
2	5	7	10	12	15	17	19	22
2	5	7	9	12	14	16	19	21
2	4	7	9	11	13	16	18	20
2	4	6	9	11	13	15	17	19
2	4	6	8	10	12	14	16	19
2	4	6	8	10	12	14	16	18
2	4	6	8	10	11	13	15	17
2	4	6	7	9	11	13	15	17
2	4	5	7	9	11	12	14	16
2	3	5	7	9	10	12	14	15
2	3	5	7	8	10	12	13	15
2	3	5	6	8	10	11	13	14
2	3	5	6	8	9	11	12	14
1	3	4	6	7	9	10	12	13
1	3	4	6	7	9	10	11	13
1	3	4	6	7	8	10	11	12
1	3	4	5	7	8	9	11	12
1	3	4	5	6	8	9	10	12
1'	2'	3'	4'	5'	6'	7'	8'	9'

LOGARITMO COSENO   P. P.

6

	0′	10′	20′	30′	40′	50′	60′		1′	2′	3′	4′	5′	6′	7′	8′	9′
0°	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	9.9999	89°	0	0	0	0	0	0	0	0	0
1	9.9999	9.9999	9.9999	9.9999	9.9998	9.9998	9.9997	88	0	0	0	0	0	0	0	0	0
2	9.9997	9.9997	9.9996	9.9996	9.9995	9.9995	9.9994	87	0	0	0	0	0	0	0	0	0
3	9.9994	9.9993	9.9993	9.9992	9.9991	9.9990	9.9989	86	0	0	0	0	0	0	1	1	1
4	9.9989	9.9989	9.9988	9.9987	9.9986	9.9985	9.9983	85	0	0	0	0	0	1	1	1	1
5	9.9983	9.9982	9.9981	9.9980	9.9979	9.9977	9.9976	84	0	0	0	0	1	1	1	1	1
6	9.9976	9.9975	9.9973	9.9972	9.9971	9.9969	9.9968	83	0	0	0	1	1	1	1	1	1
7	9.9968	9.9966	9.9964	9.9963	9.9961	9.9959	9.9958	82	0	0	0	1	1	1	1	1	1
8	9.9958	9.9956	9.9954	9.9952	9.9950	9.9948	9.9946	81	0	0	1	1	1	1	1	2	2
9	9.9946	9.9944	9.9942	9.9940	9.9938	9.9936	9.9934	80	0	0	1	1	1	1	1	2	2
10	9.9934	9.9931	9.9929	9.9927	9.9924	9.9922	9.9919	79	0	0	1	1	1	1	2	2	2
11	9.9919	9.9917	9.9914	9.9912	9.9909	9.9907	9.9904	78	0	1	1	1	1	2	2	2	2
12	9.9904	9.9901	9.9899	9.9896	9.9893	9.9890	9.9887	77	0	1	1	1	1	2	2	2	3
13	9.9887	9.9884	9.9881	9.9878	9.9875	9.9872	9.9869	76	0	1	1	1	2	2	2	2	3
14	9.9869	9.9866	9.9863	9.9859	9.9856	9.9853	9.9849	75	0	1	1	1	2	2	2	3	3
15	9.9849	9.9846	9.9843	9.9839	9.9836	9.9832	9.9828	74	0	1	1	1	2	2	2	3	3
16	9.9828	9.9825	9.9821	9.9817	9.9814	9.9810	9.9806	73	0	1	1	1	2	2	3	3	3
17	9.9806	9.9802	9.9798	9.9794	9.9790	9.9786	9.9782	72	0	1	1	2	2	2	3	3	4
18	9.9782	9.9778	9.9774	9.9770	9.9765	9.9761	9.9757	71	0	1	1	2	2	3	3	3	4
19	9.9757	9.9752	9.9748	9.9743	9.9739	9.9734	9.9730	70	0	1	1	2	2	3	3	4	4
20	9.9730	9.9725	9.9721	9.9716	9.9711	9.9706	9.9702	69	0	1	1	2	2	3	3	4	4
21	9.9702	9.9697	9.9692	9.9687	9.9682	9.9677	9.9672	68	0	1	1	2	2	3	3	4	4
22	9.9672	9.9667	9.9661	9.9656	9.9651	9.9646	9.9640	67	1	1	2	2	3	3	4	4	5
23	9.9640	9.9635	9.9629	9.9624	9.9618	9.9613	9.9607	66	1	1	2	2	3	3	4	4	5
24	9.9607	9.9602	9.9596	9.9590	9.9584	9.9579	9.9573	65	1	1	2	2	3	3	4	5	5
25	9.9573	9.9567	9.9561	9.9555	9.9549	9.9543	9.9537	64	1	1	2	2	3	4	4	5	5
26	9.9537	9.9530	9.9524	9.9518	9.9512	9.9505	9.9499	63	1	1	2	3	3	4	4	5	6
27	9.9499	9.9492	9.9486	9.9479	9.9473	9.9466	9.9459	62	1	1	2	3	3	4	5	5	6
28	9.9459	9.9453	9.9446	9.9439	9.9432	9.9425	9.9418	61	1	1	2	3	3	4	5	5	6
29	9.9418	9.9411	9.9404	9.9397	9.9390	9.9383	9.9375	60	1	1	2	3	4	4	5	6	6
30	9.9375	9.9368	9.9361	9.9353	9.9346	9.9338	9.9331	59	1	1	2	3	4	4	5	6	7
31	9.9331	9.9323	9.9315	9.9308	9.9300	9.9292	9.9284	58	1	2	2	3	4	5	5	6	7
32	9.9284	9.9276	9.9268	9.9260	9.9252	9.9244	9.9236	57	1	2	2	3	4	5	6	6	7
33	9.9236	9.9228	9.9219	9.9211	9.9203	9.9194	9.9186	56	1	2	2	3	4	5	6	7	7
34	9.9186	9.9177	9.9169	9.9160	9.9151	9.9142	9.9134	55	1	2	3	3	4	5	6	7	8
35	9.9134	9.9125	9.9116	9.9107	9.9098	9.9089	9.9080	54	1	2	3	4	5	5	6	7	8
36	9.9080	9.9070	9.9061	9.9052	9.9042	9.9033	9.9023	53	1	2	3	4	5	6	7	8	8
37	9.9023	9.9014	9.9004	8.8995	9.8985	9.8975	9.8965	52	1	2	3	4	5	6	7	8	9
38	9.8965	9.8955	9.8945	9.8935	9.8925	9.8915	9.8905	51	1	2	3	4	5	6	7	8	9
39	9.8905	9.8895	9.8884	9.8874	9.8864	9.8853	9.8843	50	1	2	3	4	5	6	7	8	9
40	9.8843	9.8832	9.8821	9.8810	9.8800	9.8789	9.8778	49	1	2	3	4	5	6	8	9	10
41	9.8778	9.8767	9.8756	9.8745	9.8733	9.8722	9.8711	48	1	2	3	4	6	7	8	9	10
42	9.8711	9.8699	9.8688	9.8676	9.8665	9.8653	9.8641	47	1	2	3	5	6	7	8	9	10
43	9.8641	9.8629	9.8618	9.8606	9.8594	9.8582	9.8569	46	1	2	4	5	6	7	8	10	11
44	9.8569	9.8557	9.8545	9.8532	9.8520	9.8507	9.8495	45	1	2	4	5	6	7	9	10	11
	60′	50′	40′	30′	20′	10′	0′		1′	2′	3′	4′	5′	6′	7′	8′	9′

	0′	10′	20′	30′	40′	50′	60′		1′	2′	3′	4′	5′	6′	7′	8′	9′
0°	—	7.4637	7.7648	7.9409	8.0658	8.1627	8.2419	89°									
1	8.2419	8.3089	8.3669	8.4181	8.4638	8.5053	8.5431	88									
2	8.5431	8.5779	8.6101	8.6401	8.6682	8.6945	8.7194	87									
3	8.7194	8.7429	8.7652	8.7865	8.8067	8.8261	8.8446	86									
4	8.8446	8.8624	8.8795	8.8960	8.9118	8.9272	8.9420	85									
5	8.9420	8.9563	8.9701	8.9836	8.9966	9.0093	9.0216	84									
6	9.0216	9.0336	9.0453	9.0567	9.0678	9.0786	9.0891	83									
7	9.0891	9.0995	9.1096	9.1194	9.1291	9.1385	9.1478	82									
8	9.1478	9.1569	9.1658	9.1745	9.1831	9.1915	9.1997	81									
9	9.1997	9.2078	9.2158	9.2236	9.2313	9.2389	9.2463	80									
10	9.2463	9.2536	9.2609	9.2680	9.2750	9.2819	9.2887	79	7	14	21	28	35	42	49	57	64
11	9.2887	9.2953	9.3020	9.3085	9.3149	9.3212	9.3275	78	6	13	19	26	32	39	45	52	58
12	9.3275	9.3336	9.3397	9.3458	9.3517	9.3576	9.3634	77	6	12	18	24	30	36	42	48	54
13	9.3634	9.3691	9.3748	9.3804	9.3859	9.3914	9.3968	76	6	11	17	22	28	33	39	45	50
14	9.3968	9.4021	9.4074	9.4127	9.4178	9.4230	9.4281	75	5	10	16	21	26	31	37	42	47
15	9.4281	9.4331	9.4381	9.4430	9.4479	9.4527	9.4575	74	5	10	15	20	25	29	34	39	44
16	9.4575	9.4622	9.4669	9.4716	9.4762	9.4808	9.4853	73	5	9	14	19	23	28	32	37	42
17	9.4853	9.4898	9.4943	9.4987	9.5031	9.5075	9.5118	72	4	9	13	18	22	26	31	35	40
18	9.5118	9.5161	9.5203	9.5245	9.5287	9.5329	9.5370	71	4	8	13	17	21	25	29	34	38
19	9.5370	9.5411	9.5451	9.5491	9.5531	9.5571	9.5611	70	4	8	12	16	20	24	28	32	36
20	9.5611	9.5650	9.5689	9.5727	9.5766	9.5804	9.5842	69	4	8	12	15	19	23	27	31	35
21	9.5842	9.5879	9.5917	9.5954	9.5991	9.6028	9.6064	68	4	7	11	15	19	22	26	30	33
22	9.6064	9.6100	9.6136	9.6172	9.6208	9.6243	9.6279	67	4	7	11	14	18	21	25	29	32
23	9.6279	9.6314	9.6348	9.6383	9.6417	9.6452	9.6486	66	3	7	10	14	17	21	24	28	31
24	9.6486	9.6520	9.6553	9.6587	9.6620	9.6654	9.6687	65	3	7	10	13	17	20	23	27	30
25	9.6687	9.6720	9.6752	9.6785	9.6817	9.6850	9.6882	64	3	6	10	13	16	20	23	26	29
26	9.6882	9.6914	9.6946	9.6977	9.7009	9.7040	9.7072	63	3	6	9	13	16	19	22	25	28
27	9.7072	9.7103	9.7134	9.7165	9.7196	9.7226	9.7257	62	3	6	9	12	15	19	22	25	28
28	9.7257	9.7287	9.7317	9.7348	9.7378	9.7408	9.7438	61	3	6	9	12	15	18	21	24	27
29	9.7438	9.7467	9.7497	9.7526	9.7556	9.7585	9.7614	60	3	6	9	12	15	18	21	24	26
30	9.7614	9.7644	9.7673	9.7701	9.7730	9.7759	9.7788	59	3	6	9	12	14	17	20	23	26
31	9.7788	9.7816	9.7845	9.7873	9.7902	9.7930	9.7958	58	3	6	9	11	14	17	20	23	26
32	9.7958	9.7986	9.8014	9.8042	9.8070	9.8097	9.8125	57	3	6	8	11	14	17	20	22	25
33	9.8125	9.8153	9.8180	9.8208	9.8235	9.8263	9.8290	56	3	5	8	11	14	16	19	22	25
34	9.8290	9.8317	9.8344	9.8371	9.8398	9.8425	9.8452	55	3	5	8	11	14	16	19	22	24
35	9.8452	9.8479	9.8506	9.8533	9.8559	9.8586	9.8613	54	3	5	8	11	13	16	19	21	24
36	9.8613	9.8639	9.8666	9.8692	9.8718	9.8745	9.8771	53	3	5	8	11	13	16	18	21	24
37	9.8771	9.8797	9.8824	9.8850	9.8876	9.8902	9.8928	52	3	5	8	10	13	16	18	21	24
38	9.8928	9.8954	9.8980	9.9006	9.9032	9.9058	9.9084	51	3	5	8	10	13	16	18	21	23
39	9.9084	9.9110	9.9135	9.9161	9.9187	9.9212	9.9238	50	3	5	8	10	13	15	18	21	23
40	9.9238	9.9264	9.9289	9.9315	9.9341	9.9366	9.9392	49	3	5	8	10	13	15	18	20	23
41	9.9392	9.9417	9.9443	9.9468	9.9494	9.9519	9.9544	48	3	5	8	10	13	15	18	20	23
42	9.9544	9.9570	9.9595	9.9621	9.9646	9.9671	9.9697	47	3	5	8	10	13	15	18	20	23
43	9.9697	9.9722	9.9747	9.9772	9.9798	9.9823	9.9848	46	3	5	8	10	13	15	18	20	23
44	9.9848	9.9874	9.9899	9.9924	9.9949	9.9975	0.0000	45	3	5	8	10	13	15	18	20	23
	60′	50′	40′	30′	20′	10′	0′		1′	2′	3′	4′	5′	6′	7′	8′	9′

Para encontrar logaritmo tangente de ángulos pequeños debe usarse la tabla de Logaritmo Arco (págs. 4 y 5).

Para encontrar el logaritmo de la cotangente cuando el arco es pequeño, se determina el logaritmo de la tangente del mismo arco con la tabla de Logaritmo Areo, y el complemento a 10 será el logaritmo de la cotangente.

	O'	10'	20'	30'	40'	50'	60'		1'	2'	3'	4'	5'	6'	7'	8'	9'
0°	—	2.5363	2.2352	2.0591	1.9342	1.8373	1.7581	89°									
1	1.7581	1.6911	1.6331	1.5819	1.5362	1.4947	1.4569	88									
2	1.4569	1.4221	1.3899	1.3599	1.3318	1.3055	1.2806	87									
3	1.2806	1.2571	1.2348	1.2135	1.1933	1.1739	1.1554	86									
4	1.1554	1.1376	1.1205	1.1040	1.0882	1.0728	1.0580	85									
5	1.0580	1.0437	1.0299	1.0164	1.0034	0.9907	0.9784	84									
6	0.9784	0.9664	0.9547	0.9433	0.9322	0.9214	0.9109	83									
7	0.9109	0.9005	0.8904	0.8806	0.8709	0.8615	0.8522	82									
8	0.8522	0.8431	0.8342	0.8255	0.8169	0.8085	0.8003	81	1'	2'	3'	4'	5'	6'	7'	8'	9'
9	0.8003	0.7922	0.7842	0.7764	0.7687	0.7611	0.7537	80									
10	0.7537	0.7464	0.7391	0.7320	0.7250	0.7181	0.7113	79	7	14	21	28	35	42	49	56	64
11	0.7113	0.7047	0.6980	0.6915	0.6851	0.6788	0.6725	78	6	13	19	26	32	39	45	52	58
12	0.6725	0.6664	0.6603	0.6542	0.6483	0.6424	0.6366	77	6	12	18	24	30	36	42	48	54
13	0.6366	0.6309	0.6252	0.6196	0.6141	0.6086	0.6032	76	6	11	17	22	28	33	39	45	50
14	0.6032	0.5979	0.5926	0.5873	0.5822	0.5770	0.5719	75	5	10	16	21	26	31	36	42	47
15	0.5719	0.5669	0.5619	0.5570	0.5521	0.5473	0.5425	74	5	10	15	20	25	29	34	39	44
16	0.5425	0.5378	0.5331	0.5284	0.5238	0.5192	0.5147	73	5	9	14	19	23	28	32	37	42
17	0.5147	0.5102	0.5057	0.5013	0.4969	0.4925	0.4882	72	4	9	13	18	22	26	31	35	40
18	0.4882	0.4839	0.4797	0.4755	0.4713	0.4671	0.4630	71	4	8	13	17	21	25	29	34	38
19	0.4630	0.4589	0.4549	0.4509	0.4469	0.4429	0.4389	70	4	8	12	16	20	24	28	32	36
20	0.4389	0.4350	0.4311	0.4273	0.4234	0.4196	0.4158	69	4	8	12	15	19	23	27	31	35
21	0.4158	0.4121	0.4083	0.4046	0.4009	0.3972	0.3936	68	4	7	11	15	19	22	26	30	33
22	0.3936	0.3900	0.3864	0.3828	0.3792	0.3757	0.3721	67	4	7	11	14	18	21	25	29	32
23	0.3721	0.3686	0.3652	0.3617	0.3583	0.3548	0.3514	66	3	7	10	14	17	21	24	28	31
24	0.3514	0.3480	0.3447	0.3413	0.3380	0.3346	0.3313	65	3	7	10	13	17	20	23	27	30
25	0.3313	0.3280	0.3248	0.3215	0.3183	0.3150	0.3118	64	3	7	10	13	16	20	23	26	29
26	0.3118	0.3086	0.3054	0.3023	0.2991	0.2960	0.2928	63	3	6	9	13	16	19	22	25	28
27	0.2928	0.2897	0.2866	0.2835	0.2804	0.2774	0.2743	62	3	6	9	12	15	19	22	25	28
28	0.2743	0.2713	0.2683	0.2652	0.2622	0.2592	0.2562	61	3	6	9	12	15	18	21	24	27
29	0.2562	0.2533	0.2503	0.2474	0.2444	0.2415	0.2386	60	3	6	9	12	15	18	21	24	27
30	0.2386	0.2356	0.2327	0.2299	0.2270	0.2241	0.2212	59	3	6	9	12	14	17	20	23	26
31	0.2212	0.2184	0.2155	0.2127	0.2098	0.2070	0.2042	58	3	6	9	11	14	17	20	23	26
32	0.2042	0.2014	0.1986	0.1958	0.1930	0.1903	0.1875	57	3	6	8	11	14	17	20	23	25
33	0.1875	0.1847	0.1820	0.1792	0.1765	0.1737	0.1710	56	3	5	8	11	14	16	19	22	25
34	0.1710	0.1683	0.1656	0.1629	0.1602	0.1575	0.1548	55	3	5	8	11	14	16	19	22	24
35	0.1548	0.1521	0.1494	0.1467	0.1441	0.1414	0.1387	54	3	5	8	11	13	16	19	21	24
36	0.1387	0.1361	0.1334	0.1308	0.1282	0.1255	0.1229	53	3	5	8	11	13	16	18	21	24
37	0.1229	0.1203	0.1176	0.1150	0.1124	0.1098	0.1072	52	3	5	8	10	13	16	18	21	24
38	0.1072	0.1046	0.1020	0.0994	0.0968	0.0942	0.0916	51	3	5	8	10	13	16	18	21	23
39	0.0916	0.0890	0.0865	0.0839	0.0813	0.0788	0.0762	50	3	5	8	10	13	15	18	21	23
40	0.0762	0.0736	0.0711	0.0685	0.0659	0.0634	0.0608	49	3	5	8	10	13	15	18	20	23
41	0.0608	0.0583	0.0557	0.0532	0.0506	0.0481	0.0456	48	3	5	8	10	13	15	18	20	23
42	0.0456	0.0430	0.0405	0.0379	0.0354	0.0329	0.0303	47	3	5	8	10	13	15	18	20	23
43	0.0303	0.0278	0.0253	0.0228	0.0202	0.0177	0.0152	46	3	5	8	10	13	15	18	20	23
44	0.0152	0.0126	0.0101	0.0076	0.0051	0.0025	0.0000	45	3	5	8	10	13	15	18	20	23
	60'	50'	40'	30'	20'	10'	O'		1'	2'	3'	4'	5'	6'	7'	8'	9'

LOGARITMO TANGENTE   P. P

	0'	10'	20'	30'	40'	50'	60'		1'	2'	3'	4'	5'	6'	7'	8'	9'
0°	0.0000	0.0029	0.0058	0.0087	0.0116	0.0145	0.0175	89°	3	6	9	12	15	17	20	23	26
1	0.0175	0.0204	0.0233	0.0262	0.0291	0.0320	0.0349	88	3	6	9	12	15	17	20	23	26
2	0.0349	0.0378	0.0407	0.0436	0.0465	0.0494	0.0523	87	3	6	9	12	15	17	20	23	26
3	0.0523	0.0552	0.0581	0.0610	0.0640	0.0669	0.0698	86	3	6	9	12	15	17	20	23	26
4	0.0698	0.0727	0.0756	0.0785	0.0814	0.0843	0.0872	85	3	6	9	12	14	17	20	23	26
5	0.0872	0.0901	0.0929	0.0958	0.0987	0.1016	0.1045	84	3	6	9	12	14	17	20	23	26
6	0.1045	0.1074	0.1103	0.1132	0.1161	0.1190	0.1219	83	3	6	9	12	14	17	20	23	26
7	0.1219	0.1248	0.1276	0.1305	0.1334	0.1363	0.1392	82	3	6	9	12	14	17	20	23	26
8	0.1392	0.1421	0.1449	0.1478	0.1507	0.1536	0.1564	81	3	6	9	12	14	17	20	23	26
9	0.1564	0.1593	0.1622	0.1650	0.1679	0.1708	0.1736	80	3	6	9	11	14	17	20	23	26
10	0.1736	0.1765	0.1794	0.1822	0.1851	0.1880	0.1908	79	3	6	9	11	14	17	20	23	26
11	0.1908	0.1937	0.1965	0.1994	0.2022	0.2051	0.2079	78	3	6	9	11	14	17	20	23	26
12	0.2079	0.2108	0.2136	0.2164	0.2193	0.2221	0.2250	77	3	6	9	11	14	17	20	23	26
13	0.2250	0.2278	0.2306	0.2334	0.2363	0.2391	0.2419	76	3	6	8	11	14	17	20	23	25
14	0.2419	0.2447	0.2476	0.2504	0.2532	0.2560	0.2588	75	3	6	8	11	14	17	20	23	25
15	0.2588	0.2616	0.2644	0.2672	0.2700	0.2728	0.2756	74	3	6	8	11	14	17	20	22	25
16	0.2756	0.2784	0.2812	0.2840	0.2868	0.2896	0.2924	73	3	6	8	11	14	17	20	22	25
17	0.2924	0.2952	0.2979	0.3007	0.3035	0.3062	0.3090	72	3	6	8	11	14	17	19	22	25
18	0.3090	0.3118	0.3145	0.3173	0.3201	0.3228	0.3256	71	3	6	8	11	14	17	19	22	25
19	0.3256	0.3283	0.3311	0.3338	0.3365	0.3393	0.3420	70	3	5	8	11	14	16	19	22	25
20	0.3420	0.3448	0.3475	0.3502	0.3529	0.3557	0.3584	69	3	5	8	11	14	16	19	22	25
21	0.3584	0.3611	0.3638	0.3665	0.3692	0.3719	0.3746	68	3	5	8	11	14	16	19	22	24
22	0.3746	0.3773	0.3800	0.3827	0.3854	0.3881	0.3907	67	3	5	8	11	13	16	19	21	24
23	0.3907	0.3934	0.3961	0.3987	0.4014	0.4041	0.4067	66	3	5	8	11	13	16	19	21	24
24	0.4067	0.4094	0.4120	0.4147	0.4173	0.4200	0.4226	65	3	5	8	11	13	16	19	21	24
25	0.4226	0.4253	0.4279	0.4305	0.4331	0.4358	0.4384	64	3	5	8	11	13	16	18	21	24
26	0.4384	0.4410	0.4436	0.4462	0.4488	0.4514	0.4540	63	3	5	8	10	13	16	18	21	23
27	0.4540	0.4566	0.4592	0.4617	0.4643	0.4669	0.4695	62	3	5	8	10	13	15	18	21	23
28	0.4695	0.4720	0.4746	0.4772	0.4797	0.4823	0.4848	61	3	5	8	10	13	15	18	20	23
29	0.4848	0.4874	0.4899	0.4924	0.4950	0.4975	0.5000	60	3	5	8	10	13	15	18	20	23
30	0.5000	0.5025	0.5050	0.5075	0.5100	0.5125	0.5150	59	3	5	8	10	13	15	18	20	23
31	0.5150	0.5175	0.5200	0.5225	0.5250	0.5275	0.5299	58	2	5	7	10	12	15	17	20	22
32	0.5299	0.5324	0.5348	0.5373	0.5398	0.5422	0.5446	57	2	5	7	10	12	15	17	20	22
33	0.5446	0.5471	0.5495	0.5519	0.5544	0.5568	0.5592	56	2	5	7	10	12	15	17	19	22
34	0.5592	0.5616	0.5640	0.5664	0.5688	0.5712	0.5736	55	2	5	7	10	12	14	17	19	22
35	0.5736	0.5760	0.5783	0.5807	0.5831	0.5854	0.5878	54	2	5	7	9	12	14	17	19	21
36	0.5878	0.5901	0.5925	0.5948	0.5972	0.5995	0.6018	53	2	5	7	9	12	14	16	19	21
37	0.6018	0.6041	0.6065	0.6088	0.6111	0.6134	0.6157	52	2	5	7	9	12	14	16	18	21
38	0.6157	0.6180	0.6202	0.6225	0.6248	0.6271	0.6293	51	2	5	7	9	11	14	16	18	20
39	0.6293	0.6316	0.6338	0.6361	0.6383	0.6406	0.6428	50	2	4	7	9	11	13	16	18	20
40	0.6428	0.6450	0.6472	0.6494	0.6517	0.6539	0.6561	49	2	4	7	9	11	13	15	18	20
41	0.6561	0.6583	0.6604	0.6626	0.6648	0.6670	0.6691	48	2	4	7	9	11	13	15	17	20
42	4.6691	0.6713	0.6734	0.6756	0.6777	0.6799	0.6820	47	2	4	6	9	11	13	15	17	19
43	0.6820	0.6841	0.6862	0.6884	0.6905	0.6926	0.6947	46	2	4	6	8	11	13	15	17	19
44	0.6947	0.6967	0.6988	0.7009	0.7030	0.7050	0.7071	45	2	4	6	8	10	12	15	17	19
	60'	50'	40'	30'	20'	10'	0'		1'	2'	3'	4'	5'	6'	7'	8'	9'

COSENO NATURAL P. P.

	0′	10′	20′	30′	40′	50′	60′		1′	2′	3′	4′	5′	6′	7′	8′	9′
0°	1.0000	1.0000	1.0000	1.0000	0.9999	0.9999	0.9998	89°	0	0	0	0	0	0	0	0	0
1	0.9998	0.9998	0.9997	0.9997	0.9996	0.9995	0.9994	88	0	0	0	0	0	1	1	1	1
2	0.9994	0.9993	0.9992	0.9990	0.9989	0.9988	0.9986	87	0	0	0	1	1	1	1	1	1
3	0.9986	0.9985	0.9983	0.9981	0.9980	0.9978	0.9976	86	0	0	1	1	1	1	1	1	2
4	0.9976	0.9974	0.9971	0.9969	0.9967	0.9964	0.9962	85	0	0	1	1	1	1	2	2	2
5	0.9962	0.9960	0.9957	0.9954	0.9951	0.9948	0.9945	84	0	1	1	1	1	2	2	2	3
6	0.9945	0.9942	0.9939	0.9936	0.9932	0.9929	0.9925	83	0	1	1	1	2	2	2	3	3
7	0.9925	0.9922	0.9918	0.9914	0.9911	0.9907	0.9903	82	0	1	1	2	2	2	3	3	3
8	0.9903	0.9899	0.9894	0.9890	0.9886	0.9881	0.9877	81	0	1	1	2	2	3	3	3	4
9	0.9877	0.9872	0.9868	0.9863	0.9858	0.9853	0.9848	80	0	1	1	2	2	3	3	4	4
10	0.9848	0.9843	0.9838	0.9833	0.9827	0.9822	0.9816	79	1	1	2	2	3	3	4	4	5
11	0.9816	0.9811	0.9805	0.9799	0.9793	0.9787	0.9781	78	1	1	2	2	3	3	4	5	5
12	0.9781	0.9775	0.9769	0.9763	0.9757	0.9750	0.9744	77	1	1	2	3	3	4	4	5	6
13	0.9744	0.9737	0.9730	0.9724	0.9717	0.9710	0.9703	76	1	1	2	3	3	4	5	5	6
14	0.9703	0.9696	0.9689	0.9681	0.9674	0.9667	0.9659	75	1	1	2	3	4	4	5	6	7
15	0.9659	0.9652	0.9644	0.9636	0.9628	0.9621	0.9613	74	1	2	2	3	4	5	5	6	7
16	0.9613	0.9605	0.9596	0.9588	0.9580	0.9572	0.9563	73	1	2	2	3	4	5	6	7	7
17	0.9563	0.9555	0.9546	0.9537	0.9528	0.9520	0.9511	72	1	2	3	3	4	5	6	7	8
18	0.9511	0.9502	0.9492	0.9483	0.9474	0.9465	0.9455	71	1	2	3	4	5	6	6	7	8
19	0.9455	0.9446	0.9436	0.9426	0.9417	0.9407	0.9397	70	1	2	3	4	5	6	7	8	9
20	0.9397	0.9387	0.9377	0.9367	0.9356	0.9346	0.9336	69	1	2	3	4	5	6	7	8	9
21	0.9336	0.9325	0.9315	0.9304	0.9293	0.9283	0.9272	68	1	2	3	4	5	6	7	9	10
22	0.9272	0.9261	0.9250	0.9239	0.9228	0.9216	0.9205	67	1	2	3	4	6	7	8	9	10
23	0.9205	0.9194	0.9182	0.9171	0.9159	0.9147	0.9135	66	1	2	3	5	6	7	8	9	10
24	0.9135	0.9124	0.9112	0.9100	0.9088	0.9075	0.9063	65	1	2	4	5	6	7	8	10	11
25	0.9063	0.9051	0.9038	0.9026	0.9013	0.9001	0.8988	64	1	3	4	5	6	8	9	10	11
26	0.8988	0.8975	0.8962	0.8949	0.8936	0.8923	0.8910	63	1	3	4	5	6	8	9	10	12
27	0.8910	0.8897	0.8884	0.8870	0.8857	0.8843	0.8829	62	1	3	4	5	7	8	9	11	12
28	0.8829	0.8816	0.8802	0.8788	0.8774	0.8760	0.8746	61	1	3	4	6	7	8	10	11	12
29	0.8746	0.8732	0.8718	0.8704	0.8689	0.8675	0.8660	60	1	3	4	6	7	9	10	11	13
30	0.8660	0.8646	0.8631	0.8616	0.8601	0.8587	0.8572	59	1	3	4	6	7	9	10	12	13
31	0.8572	0.8557	0.8542	0.8526	0.8511	0.8496	0.8480	58	2	3	5	6	8	9	11	12	14
32	0.8480	0.8465	0.8450	0.8434	0.8418	0.8403	0.8387	57	2	3	5	6	8	9	11	13	14
33	0.8387	0.8371	0.8355	0.8339	0.8323	0.8307	0.8290	56	2	3	5	6	8	10	11	13	14
34	0.8290	0.8274	0.8258	0.8241	0.8225	0.8208	0.8192	55	2	3	5	7	8	10	12	13	15
35	0.8192	0.8175	0.8158	0.8141	0.8124	0.8107	0.8090	54	2	3	5	7	8	10	12	14	15
36	0.8090	0.8073	0.8056	0.8039	0.8021	0.8004	0.7986	53	2	3	5	7	9	10	12	14	16
37	0.7986	0.7969	0.7951	0.7934	0.7916	0.7898	0.7880	52	2	4	5	7	9	11	12	14	16
38	0.7880	0.7862	0.7844	0.7826	0.7808	0.7790	0.7771	51	2	4	5	7	9	11	13	14	16
39	0.7771	0.7753	0.7735	0.7716	0.7698	0.7679	0.7660	50	2	4	6	7	9	11	13	15	17
40	0.7660	0.7642	0.7623	0.7604	0.7585	0.7566	0.7547	49	2	4	6	8	9	11	13	15	17
41	0.7547	0.7528	0.7509	0.7490	0.7470	0.7451	0.7431	48	2	4	6	8	10	12	13	15	17
42	0.7431	0.7412	0.7392	0.7373	0.7353	0.7333	0.7314	47	2	4	6	8	10	12	14	16	18
43	0.7314	0.7294	0.7274	0.7254	0.7234	0.7214	0.7193	46	2	4	6	8	10	12	14	16	18
44	0.7193	0.7173	0.7153	0.7133	0.7112	0.7092	0.7071	45	2	4	6	8	10	12	14	16	18
	60′	50′	40′	30′	20′	10′	0′		1′	2′	3′	4′	5′	6′	7′	8′	9′

SENO NATURAL P. P.

11

	0′	10′	20′	30′	40′	50′	60′		1′	2′	3′	4′	5′	6′	7′	8′	9′
0°	0.0000	0.0029	0.0058	0.0087	0.0116	0.0145	0.0175	89°	3	6	9	12	15	17	20	23	26
1	0.0175	0.0204	0.0233	0.0262	0.0291	0.0320	0.0349	88	3	6	9	12	15	17	20	23	26
2	0.0349	0.0378	0.0407	0.0437	0.0466	0.0495	0.0524	87	3	6	9	12	15	17	20	23	26
3	0.0524	0.0553	0.0582	0.0612	0.0641	0.0670	0.0699	86	3	6	9	12	15	18	20	23	26
4	0.0699	0.0729	0.0758	0.0787	0.0816	0.0846	0.0875	85	3	6	9	12	15	18	20	23	26
5	0.0875	0.0904	0.0934	0.0963	0.0992	0.1022	0.1051	84	3	6	9	12	15	18	21	23	26
6	0.1051	0.1080	0.1110	0.1139	0.1169	0.1198	0.1228	83	3	6	9	12	15	18	21	24	27
7	0.1228	0.1257	0.1287	0.1317	0.1346	0.1376	0.1405	82	3	6	9	12	15	18	21	24	27
8	0.1405	0.1435	0.1465	0.1495	0.1524	0.1554	0.1584	81	3	6	9	12	15	18	21	24	27
9	0.1584	0.1614	0.1644	0.1673	0.1703	0.1733	0.1763	80	3	6	9	12	15	18	21	24	27
10	0.1763	0.1793	0.1823	0.1853	0.1883	0.1914	0.1944	79	3	6	9	12	15	18	21	24	27
11	0.1944	0.1974	0.2004	0.2035	0.2065	0.2095	0.2126	78	3	6	9	12	15	18	21	24	27
12	0.2126	0.2156	0.2186	0.2217	0.2247	0.2278	0.2309	77	3	6	9	12	15	18	21	24	27
13	0.2309	0.2339	0.2370	0.2401	0.2432	0.2462	0.2493	76	3	6	9	12	15	18	22	25	28
14	0.2493	0.2524	0.2555	0.2586	0.2617	0.2648	0.2679	75	3	6	9	12	16	19	22	25	28
15	0.2679	0.2711	0.2742	0.2773	0.2805	0.2836	0.2867	74	3	6	9	13	16	19	22	25	28
16	0.2867	0.2899	0.2931	0.2962	0.2994	0.3026	0.3057	73	3	6	9	13	16	19	22	25	28
17	0.3057	0.3089	0.3121	0.3153	0.3185	0.3217	0.3249	72	3	6	10	13	16	19	22	26	29
18	0.3249	0.3281	0.3314	0.3346	0.3378	0.3411	0.3443	71	3	6	10	13	16	19	23	26	29
19	0.3443	0.3476	0.3508	0.3541	0.3574	0.3607	0.3640	70	3	7	10	13	16	20	23	26	29
20	0.3640	0.3673	0.3706	0.3739	0.3772	0.3805	0.3839	69	3	7	10	13	17	20	23	27	30
21	0.3839	0.3872	0.3906	0.3939	0.3973	0.4006	0.4040	68	3	7	10	13	17	20	24	27	30
22	0.4040	0.4074	0.4108	0.4142	0.4176	0.4210	0.4245	67	3	7	10	14	17	20	24	27	31
23	0.4245	0.4279	0.4314	0.4348	0.4383	0.4417	0.4452	66	3	7	10	14	17	21	24	28	31
24	0.4452	0.4487	0.4522	0.4557	0.4592	0.4628	0.4663	65	4	7	11	14	18	21	25	28	32
25	0.4663	0.4699	0.4734	0.4770	0.4806	0.4841	0.4877	64	4	7	11	14	18	21	25	29	32
26	0.4877	0.4913	0.4950	0.4986	0.5022	0.5059	0.5095	63	4	7	11	15	18	22	25	29	33
27	0.5095	0.5132	0.5169	0.5206	0.5243	0.5280	0.5317	62	4	7	11	15	18	22	26	30	33
28	0.5317	0.5354	0.5392	0.5430	0.5467	0.5505	0.5543	61	4	8	11	15	19	23	26	30	34
29	0.5543	0.5581	0.5619	0.5658	0.5696	0.5735	0.5774	60	4	8	12	15	19	23	27	31	35
30	0.5774	0.5812	0.5851	0.5890	0.5930	0.5969	0.6009	59	4	8	12	16	20	24	27	31	35
31	0.6009	0.6048	0.6088	0.6128	0.6168	0.6208	0.6249	58	4	8	12	16	20	24	28	32	36
32	0.6249	0.6289	0.6330	0.6371	0.6412	0.6453	0.6494	57	4	8	12	16	20	25	29	33	37
33	0.6494	0.6536	0.6577	0.6619	0.6661	0.6703	0.6745	56	4	8	13	17	21	25	29	33	38
34	0.6745	0.6787	0.6830	0.6873	0.6916	0.6959	0.7002	55	4	9	13	17	21	26	30	34	39
35	0.7002	0.7046	0.7089	0.7133	0.7177	0.7221	0.7265	54	4	9	13	18	22	26	31	35	40
36	0.7265	0.7310	0.7355	0.7400	0.7445	0.7490	0.7536	53	5	9	14	18	23	27	32	36	41
37	0.7536	0.7581	0.7627	0.7673	0.7720	0.7766	0.7813	52	5	9	14	18	23	28	32	37	42
38	0.7813	0.7860	0.7907	0.7954	0.8002	0.8050	0.8098	51	5	9	14	19	24	28	33	38	43
39	0.8098	0.8146	0.8195	0.8243	0.8292	0.8342	0.8391	50	5	10	15	20	24	29	34	39	44
40	0.8391	0.8441	0.8491	0.8541	0.8591	0.8642	0.8693	49	5	10	15	20	25	30	35	40	45
41	0.8693	0.8744	0.8796	0.8847	0.8899	0.8952	0.9004	48	5	10	16	21	26	31	36	41	47
42	0.9004	0.9057	0.9110	0.9163	0.9217	0.9271	0.9325	47	5	11	16	21	27	32	37	43	48
43	0.9325	0.9380	0.9435	0.9490	0.9545	0.9601	0.9657	46	6	11	17	22	28	33	39	44	50
44	0.9657	0.9713	0.9770	0.9827	0.9884	0.9942	1.0000	45	6	11	17	23	29	34	40	46	51
	60′	50′	40′	30′	20′	10′	0′		1′	2′	3′	4′	5′	6′	7′	8′	9′

COTANGENTE NATURAL P. P.

	0'	10'	20'	30'	40'	50'	60'		1'	2'	3'	4'	5'	6'	7'	8'	9'
0°	∞	343.8	171.9	114.6	85.94	68.75	57.29	89°									
1	57.29	49.10	42.96	38.19	34.37	31.24	28.64	88									
2	28.64	26.43	24.54	22.90	21.47	20.21	19.08	87									
3	19.08	18.07	17.17	16.35	15.60	14.92	14.30	86									
4	14.30	13.73	13.20	12.71	12.25	11.83	11.43	85									
5	11.43	11.06	10.71	10.39	10.08	9.788	9.514	84									
6	9.514	9.255	9.010	8.777	8.556	8.345	8.144	83									
7	8.144	7.953	7.770	7.596	7.429	7.269	7.115	82									
8	7.115	6.968	6.827	6.691	6.561	6.435	6.314	81									
9	6.314	6.197	6.084	5.976	5.871	5.769	5.671	80									
10	5.671	5.576	5.485	5.396	5.309	5.226	5.145	79									
11	5.145	5.066	4.989	4.915	4.843	4.773	4.705	78	1'	2'	3'	4'	5'	6'	7'	8'	9'
12	4.705	4.638	4.574	4.511	4.449	4.390	4.331	77									
13	4.331	4.275	4.219	4.165	4.113	4.061	4.011	76									
14	4.011	3.962	3.914	3.867	3.821	3.776	3.732	75	5	9	14	19	23	28	33	37	42
15	3.732	3.689	3.647	3.606	3.566	3.526	3.487	74	4	8	12	16	20	24	29	33	37
16	3.487	3.450	3.412	3.376	3.340	3.305	3.271	73	4	7	11	14	18	22	25	29	32
17	3.271	3.237	3.204	3.172	3.140	3.108	3.078	72	3	6	10	13	16	19	23	26	29
18	3.078	3.047	3.018	2.989	2.960	2.932	2.904	71	3	6	9	12	14	17	20	23	26
19	2.904	3.877	2.850	2.824	2.798	2.773	2.747	70	3	5	8	10	13	16	18	21	24
20	2.747	2.723	2.699	2.675	2.651	2.628	2.605	69	2	5	7	9	12	14	17	19	21
21	2.605	2.583	2.560	2.539	2.517	2.496	2.475	68	2	4	7	9	11	13	15	17	20
22	2.475	2.455	2.434	2.414	2.394	2.375	2.356	67	2	4	6	8	10	12	14	16	18
23	2.356	2.337	2.318	2.300	2.282	2.264	2.246	66	2	4	5	7	9	11	13	15	16
24	2.246	2.229	2.211	2.194	2.177	2.161	2.145	65	2	3	5	7	8	10	12	14	15
25	2.145	2.128	2.112	2.097	2.081	2.066	2.050	64	2	3	5	6	8	9	11	13	14
26	2.050	2.035	2.020	2.006	1.991	1.977	1.963	63	1	3	4	6	7	9	10	12	13
27	1.963	1.949	1.935	1.921	1.907	1.894	1.881	62	1	3	4	5	7	8	10	11	12
28	1.881	1.868	1.855	1.842	1.829	1.816	1.804	61	1	3	4	5	6	8	9	10	12
29	1.804	1.792	1.780	1.767	1.756	1.744	1.732	60	1	2	4	5	6	7	8	10	11
30	1.732	1.720	1.709	1.698	1.686	1.675	1.664	59	1	2	3	5	6	7	8	9	10
31	1.664	1.653	1.643	1.632	1.621	1.611	1.600	58	1	2	3	4	5	6	7	9	10
32	1.600	1.590	1.580	1.570	1.560	1.550	1.540	57	1	2	3	4	5	6	7	8	9
33	1.540	1.530	1.520	1.511	1.501	1.492	1.483	56	1	2	3	4	5	6	7	8	9
34	1.483	1.473	1.464	1.455	1.446	1.437	1.428	55	1	2	3	4	5	5	6	7	8
35	1.428	1.419	1.411	1.402	1.393	1.385	1.376	54	1	2	3	3	4	5	6	7	8
36	1.376	1.368	1.360	1.351	1.343	1.335	1.327	53	1	2	2	3	4	5	6	7	7
37	1.327	1.319	1.311	1.303	1.295	1.288	1.280	52	1	2	2	3	4	5	5	6	7
38	1.280	1.272	1.265	1.257	1.250	1.242	1.235	51	1	2	2	3	4	5	5	6	7
39	1.235	1.228	1.220	1.213	1.206	1.199	1.192	50	1	1	2	3	4	4	5	6	6
40	1 192	1.185	1.178	1.171	1.164	1.157	1.150	49	1	1	2	3	3	4	5	6	6
41	1.150	1.144	1.137	1.130	1.124	1.117	1.111	48	1	1	2	3	3	4	5	5	6
42	1.111	1.104	1.098	1.091	1.085	1.079	1.072	47	1	1	2	3	3	4	4	5	6
43	1.072	1.066	1.060	1.054	1.048	1.042	1.036	46	1	1	2	2	3	4	4	5	6
44	1.036	1.030	1.024	1.018	1.012	1.006	1.000	45	1	1	2	2	3	4	4	5	5
	60'	50'	40'	30'	20'	10'	0'		1'	2'	3'	4'	5'	6'	7'	8'	9'

TANGENTE NATURAL P. P.

13

ARCO

	O'	10'	20'	30'	40'	50'	1'	2'	3'	4'	5'	6'	7'	8'	9'
0°	0.0000	0.0029	0.0058	0.0087	0.0116	0.0145	3	6	9	12	15	17	20	23	26
1	0.0175	0.0204	0.0233	0.0262	0.0291	0.0320	3	6	9	12	15	17	20	23	26
2	0.0349	0.0378	0.0407	0.0436	0.0465	0.0495	3	6	9	12	15	17	20	23	26
3	0.0524	0.0553	0.0582	0.0611	0.0640	0.0669	3	6	9	12	15	17	20	23	26
4	0.0698	0.0727	0.0756	0.0785	0.0814	0.0844	3	6	9	12	15	17	20	23	26
5	0.0873	0.0902	0.0931	0.0960	0.0989	0.1018	3	6	9	12	15	17	20	23	26
6	0.1047	0.1076	0.1105	0.1134	0.1164	0.1193	3	6	9	12	15	17	20	23	26
7	0.1222	0.1251	0.1280	0.1309	0.1338	0.1367	3	6	9	12	15	17	20	23	26
8	0.1396	0.1425	0.1454	0.1484	0.1513	0.1542	3	6	9	12	15	17	20	23	26
9	0.1571	0.1600	0.1629	0.1658	0.1687	0.1716	3	6	9	12	15	17	20	23	26
10	0.1745	0.1774	0.1804	0.1833	0.1862	0.1891	3	6	9	12	15	17	20	23	26
11	0.1920	0.1949	0.1978	0.2007	0.2036	0.2065	3	6	9	12	15	17	20	23	26
12	0.2094	0.2123	0.2153	0.2182	0.2211	0.2240	3	6	9	12	15	17	20	23	26
13	0.2269	0.2298	0.2327	0.2356	0.2385	0.2414	3	6	9	12	15	17	20	23	26
14	0.2443	0.2473	0.2502	0.2531	0.2560	0.2589	3	6	9	12	15	17	20	23	26
15	0.2618	0.2647	0.2676	0.2705	0.2734	0.2763	3	6	9	12	15	17	20	23	26
16	0.2793	0.2822	0.2851	0.2880	0.2909	0.2938	3	6	9	12	15	17	20	23	26
17	0.2967	0.2996	0.3025	0.3054	0.3083	0.3113	3	6	9	12	15	17	20	23	26
18	0.3142	0.3171	0.3200	0.3229	0.3258	0.3287	3	6	9	12	15	17	20	23	26
19	0.3316	0.3345	0.3374	0.3403	0.3432	0.3462	3	6	9	12	15	17	20	23	26
20	0.3491	0.3520	0.3549	0.3578	0.3607	0.3636	3	6	9	12	15	17	20	23	26
21	0.3665	0.3694	0.3723	0.3752	0.3782	0.3811	3	6	9	12	15	17	20	23	26
22	0.3840	0.3869	0.3898	0.3927	0.3956	0.3985	3	6	9	12	15	17	20	23	26
23	0.4014	0.4043	0.4072	0.4102	0.4131	0.4160	3	6	9	12	15	17	20	23	26
24	0.4189	0.4218	0.4247	0.4276	0.4305	0.4334	3	6	9	12	15	17	20	23	26
25	0.4363	0.4392	0.4422	0.4451	0.4480	0.4509	3	6	9	12	15	17	20	23	26
26	0.4538	0.4567	0.4596	0.4625	0.4654	0.4683	3	6	9	12	15	17	20	23	26
27	0.4712	0.4741	0.4771	0.4800	0.4829	0.4858	3	6	9	12	15	17	20	23	26
28	0.4887	0.4916	0.4945	0.4974	0.5003	0.5032	3	6	9	12	15	17	20	23	26
29	0.5061	0.5091	0.5120	0.5149	0.5178	0.5207	3	6	9	12	15	17	20	23	26
30	0.5236	0.5265	0.5294	0.5323	0.5352	0.5381	3	6	9	12	15	17	20	23	26
31	0.5411	0.5440	0.5469	0.5498	0.5527	0.5556	3	6	9	12	15	17	20	23	26
32	0.5585	0.5614	0.5643	0.5672	0.5701	0.5730	3	6	9	12	15	17	20	23	26
33	0.5760	0.5789	0.5818	0.5847	0.5876	0.5905	3	6	9	12	15	17	20	23	26
34	0.5934	0.5963	0.5992	0.6021	0.6050	0.6080	3	6	9	12	15	17	20	23	26
35	0.6109	0.6138	0.6167	0.6196	0.6225	0.6254	3	6	9	12	15	17	20	23	26
36	0.6283	0.6312	0.6341	0.6370	0.6400	0.6429	3	6	9	12	15	17	20	23	26
37	0.6458	0.6487	0.6516	0.6545	0.6574	0.6603	3	6	9	12	15	17	20	23	26
38	0.6632	0.6661	0.6690	0.6720	0.6749	0.6778	3	6	9	12	15	17	20	23	26
39	0.6807	0.6836	0.6865	0.6894	0.6923	0.6952	3	6	9	12	15	17	20	23	26
40	0.6981	0.7010	0.7039	0.7069	0.7098	0.7127	3	6	9	12	15	17	20	23	26
41	0.7156	0.7185	0.7214	0.7243	0.7272	0.7301	3	6	9	12	15	17	20	23	26
42	0.7330	0.7359	0.7389	0.7418	0.7447	0.7476	3	6	9	12	15	17	20	23	26
43	0.7505	0.7534	0.7563	0.7592	0.7621	0.7650	3	6	9	12	15	17	20	23	26
44	0.7679	0.7709	0.7738	0.7767	0.7796	0.7825	3	6	9	12	15	17	20	23	26
	O'	10'	20'	30'	40'	50'	1'	2'	3'	4'	5'	6'	7'	8'	9'

180° = 3.1416   360° = 6.2832

14

ARCO

	0′	10′	20′	30′	40′	50′	1′	2′	3′	4′	5′	6′	7′	8′	9′
45	0.7854	0.7883	0.7912	0.7941	0.7970	0.7099	3	6	9	12	15	17	20	23	26
46	0.8029	0.8058	0.8087	0.8116	0.8145	0.8174	3	6	9	12	15	17	20	23	26
47	0.8203	0.8232	0.8261	0.8290	0.8319	0.8348	3	6	9	12	15	17	20	23	26
48	0.8378	0.8407	0.8436	0.8465	0.8494	0.8523	3	6	9	12	15	17	20	23	26
49	0.8552	0.8581	0.8610	0.8639	0.8668	0.8698	3	6	9	12	15	17	20	23	26
50	0.8727	0.8756	0.8785	0.8814	0.8843	0.8872	3	6	9	12	15	17	20	23	26
51	0.8901	0.8930	0.8959	0.8988	0.9018	0.9047	3	6	9	12	15	17	20	23	26
52	0.9076	0.9105	0.9134	0.9163	0.9192	0.9221	3	6	9	12	15	17	20	23	26
53	0.9250	0.9279	0.9308	0.9338	0.9367	0.9396	3	6	9	12	15	17	20	23	26
54	0.9425	0.9454	0.9483	0.9512	0.9541	0.9570	3	6	9	12	15	17	20	23	26
55	0.9599	0.9628	0.9657	0.9687	0.9716	0.9745	3	6	9	12	15	17	20	23	26
56	0.9774	0.9803	0.9832	0.9861	0.9890	0.9919	3	6	9	12	15	17	20	23	26
57	0.9948	0.9977	1.0007	1.0036	1.0065	1.0094	3	6	9	12	15	17	20	23	26
58	1.0123	1.0152	1.0181	1.0210	1.0239	1.0268	3	6	9	12	15	17	20	23	26
59	1.0297	1.0327	1.0356	1.0385	1.0414	1.0443	3	6	9	12	15	17	20	23	26
60	1.0472	1.0501	1.0530	1.0559	1.0588	1.0617	3	6	9	12	15	17	20	23	26
61	1.0647	1.0676	1.0705	1.0734	1.0763	1.0792	3	6	9	12	15	17	20	23	26
62	1.0821	1.0850	1.0879	1.0908	1.0937	1.0966	3	6	9	12	15	17	20	23	26
63	1.0996	1.1025	1.1054	1.1083	1.1112	1.1141	3	6	9	12	15	17	20	23	26
64	1.1170	1.1199	1.1228	1.1257	1.1286	1.1316	3	6	9	12	15	17	20	23	26
65	1.1345	1.1374	1.1403	1.1432	1.1461	1.1490	3	6	9	12	15	17	20	23	26
66	1.1519	1.1548	1.1577	1.1606	1.1636	1.1665	3	6	9	12	15	17	20	23	26
67	1.1694	1.1723	1.1752	1.1781	1.1810	1.1839	3	6	9	12	15	17	20	23	26
68	1.1868	1.1897	1.1926	1.1956	1.1985	1.2014	3	6	9	12	15	17	20	23	26
69	1.2043	1.2072	1.2101	1.2130	1.2159	1.2188	3	6	9	12	15	17	20	23	26
70	1.2217	1.2246	1.2275	1.2305	1.2334	1.2363	3	6	9	12	15	17	20	23	26
71	1.2392	1.2421	1.2450	1.2479	1.2508	1.2537	3	6	9	12	15	17	20	23	26
72	1.2566	1.2595	1.2625	1.2654	1.2683	1.2712	3	6	9	12	15	17	20	23	26
73	1.2741	1.2770	1.2799	1.2828	1.2857	1.2886	3	6	9	12	15	17	20	23	26
74	1.2915	1.2945	1.2974	1.3003	1.3032	1.3061	3	6	9	12	15	17	20	23	26
75	1.3090	1.3119	1.3148	1.3177	1.3206	1.3235	3	6	9	12	15	17	20	23	26
76	1.3265	1.3294	1.3323	1.3352	1.3381	1.3410	3	6	9	12	15	17	20	23	26
77	1.3439	1.3468	1.3497	1.3526	1.3555	1.3584	3	6	9	12	15	17	20	23	26
78	1.3614	1.3643	1.3672	1.3701	1.3730	1.3759	3	6	9	12	15	17	20	23	26
79	1.3788	1.3817	1.3846	1.3875	1.3904	1.3934	3	6	9	12	15	17	20	23	26
80	1.3963	1.3992	1.4021	1.4050	1.4079	1.4108	3	6	9	12	15	17	20	23	26
81	1.4137	1.4166	1.4195	1.4224	1.4254	1.4283	3	6	9	12	15	17	20	23	26
82	1.4312	1.4341	1.4370	1.4399	1.4428	1.4457	3	6	9	12	15	17	20	23	26
83	1.4486	1.4515	1.4544	1.4573	1.4603	1.4632	3	6	9	12	15	17	20	23	26
84	1.4661	1.4690	1.4719	1.4748	1.4777	1.4806	3	6	9	12	15	17	20	23	26
85	1.4835	1.4864	1.4893	1.4923	1.4952	1.4981	3	6	9	12	15	17	20	23	26
86	1.5010	1.5039	1.5068	1.5097	1.5126	1.5155	3	6	9	12	15	17	20	23	26
87	1.5184	1.5213	1.5243	1.5272	1.5301	1.5330	3	6	9	12	15	17	20	23	26
88	1.5359	1.5388	1.5417	1.5446	1.5475	1.5504	3	6	9	12	15	17	20	23	26
89	1.5533	1.5563	1.5592	1.5621	1.5650	1.5679	3	6	9	12	15	17	20	23	26
	0′	10′	20′	30′	40′	50′	1′	2′	3′	4′	5′	6′	7′	8′	9′

$$180° = 3.1416 \qquad 360° = 6.2832$$

13

	O	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
10	10000	9901	9804	9709	9615	9524	9434	9346	9259	9174	9	18	27	36	45	55	64	73	82
11	9091	9009	8929	8850	8772	8696	8621	8547	8475	8403	8	15	23	30	38	45	53	61	68
12	8333	8264	8197	8130	8065	8000	7937	7874	7813	7752	6	13	19	26	32	38	45	51	58
13	7692	7634	7576	7519	7463	7407	7353	7299	7246	7194	5	11	16	22	27	33	38	44	49
14	7143	7092	7042	6993	6944	6897	6849	6803	6757	6711	5	10	14	19	24	29	33	38	43
15	6667	6623	6579	6536	6494	6452	6410	6369	6329	6289	4	8	13	17	21	25	29	33	38
16	6250	6211	6173	6135	6098	6061	6024	5988	5952	5917	4	7	11	15	18	22	26	29	33
17	5882	5848	5814	5780	5747	5714	5682	5650	5618	5587	3	6	10	13	16	20	23	26	29
18	5556	5525	5495	5464	5435	5405	5376	5348	5319	5291	3	6	9	12	15	17	20	23	26
19	5263	5236	5208	5181	5155	5128	5102	5076	5051	5025	3	5	8	11	13	16	18	21	24
20	5000	4975	4950	4926	4902	4878	4854	4831	4808	4785	2	5	7	10	12	14	17	19	21
21	4762	4739	4717	4695	4673	4651	4630	4608	4587	4566	2	4	6	9	11	13	15	17	19
22	4545	4525	4505	4484	4464	4444	4425	4405	4386	4367	2	4	6	8	10	12	14	16	18
23	4348	4329	4310	4292	4274	4255	4237	4219	4202	4184	2	4	5	7	9	11	13	14	16
24	4167	4149	4132	4115	4098	4082	4065	4049	4032	4016	2	3	5	7	8	10	12	13	15
25	4000	3984	3968	3953	3937	3922	3906	3891	3876	3861	2	3	5	6	8	9	11	12	14
26	3846	3831	3817	3802	3788	3774	3759	3745	3731	3717	1	3	4	6	7	8	10	11	13
27	3704	3690	3676	3663	3650	3636	3623	3610	3597	3584	1	3	4	5	7	8	9	11	12
28	3571	3559	3546	3534	3521	3509	3497	3484	3472	3460	1	2	4	5	6	7	9	10	11
29	3448	3436	3425	3413	3401	3390	3378	3367	3356	3344	1	2	3	5	6	7	8	9	10
30	3333	3322	3311	3300	3289	3279	3268	3257	3247	3236	1	2	3	4	5	6	8	9	10
31	3226	3215	3205	3195	3185	3175	3165	3155	3145	3135	1	2	3	4	5	6	7	8	9
32	3125	3115	3106	3096	3086	3077	3067	3058	3049	3040	1	2	3	4	5	6	7	8	9
33	3030	3021	3012	3003	2994	2985	2976	2967	2959	2950	1	2	3	4	4	5	6	7	8
34	2941	2933	2924	2915	2907	2899	2890	2882	2874	2865	1	2	3	3	4	5	6	7	8
35	2857	2849	2841	2833	2825	2817	2809	2801	2793	2786	1	2	2	3	4	5	6	6	7
36	2778	2770	2762	2755	2747	2740	2732	2725	2717	2710	1	2	2	3	4	5	5	6	7
37	2703	2695	2688	2681	2674	2667	2660	2653	2646	2639	1	1	2	3	4	4	5	6	6
38	2632	2625	2618	2611	2604	2597	2591	2584	2577	2571	1	1	2	3	3	4	5	5	6
39	2564	2558	2551	2545	2538	2532	2525	2519	2513	2506	1	1	2	3	3	4	4	5	6
40	2500	2494	2488	2481	2475	2469	2463	2457	2451	2445	1	1	2	2	3	4	4	5	5
41	2439	2433	2427	2421	2415	2410	2404	2398	2392	2387	1	1	2	2	3	3	4	5	5
42	2381	2375	2370	2364	2358	2353	2347	2342	2336	2331	1	1	2	2	3	3	4	4	5
43	2326	2320	2315	2309	2304	2299	2294	2288	2283	2278	1	1	2	2	3	3	4	4	5
44	2273	2268	2262	2257	2252	2247	2242	2237	2232	2227	1	1	2	2	3	3	4	4	5
45	2222	2217	2212	2208	2203	2198	2193	2188	2183	2179	0	1	1	2	2	3	3	4	4
46	2174	2169	2165	2160	2155	2151	2146	2141	2137	2132	0	1	1	2	2	3	3	4	4
47	2128	2123	2119	2114	2110	2105	2101	2096	2092	2088	0	1	1	2	2	3	3	4	4
48	2083	2079	2075	2070	2066	2062	2058	2053	2049	2045	0	1	1	2	2	3	3	3	4
49	2041	2037	2033	2028	2024	2020	2016	2012	2008	2004	0	1	1	2	2	2	3	3	4
50	2000	1996	1992	1988	1984	1980	1976	1972	1969	1965	0	1	1	2	2	2	3	3	4
51	1961	1957	1953	1949	1946	1942	1938	1934	1931	1927	0	1	1	2	2	2	3	3	3
52	1923	1919	1916	1912	1908	1905	1901	1898	1894	1890	0	1	1	1	2	2	3	3	3
53	1887	1883	1880	1876	1873	1869	1866	1862	1859	1855	0	1	1	1	2	2	2	3	3
54	1852	1848	1845	1842	1838	1835	1832	1828	1825	1821	0	1	1	1	2	2	2	3	3
	O	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9

	O	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
55	1818	1815	1812	1808	1805	1802	1799	1795	1792	1789	0	1	1	1	2	2	2	3	3
56	1786	1783	1779	1776	1773	1770	1767	1764	1761	1757	0	1	1	1	2	2	2	3	3
57	1754	1751	1748	1745	1742	1739	1736	1733	1730	1727	0	1	1	1	2	2	2	2	3
58	1724	1721	1718	1715	1712	1709	1706	1704	1701	1698	0	1	1	1	1	2	2	2	3
59	1695	1692	1689	1686	1684	1681	1678	1675	1672	1669	0	1	1	1	1	2	2	2	3
60	1667	1664	1661	1658	1656	1653	1650	1647	1645	1642	0	1	1	1	1	2	2	2	3
61	1639	1637	1634	1631	1629	1626	1623	1621	1618	1616	0	1	1	1	1	2	2	2	2
62	1613	1610	1608	1605	1603	1600	1597	1595	1592	1590	0	1	1	1	1	2	2	2	2
63	1587	1585	1582	1580	1577	1575	1572	1570	1567	1565	0	0	1	1	1	1	2	2	2
64	1563	1560	1558	1555	1553	1550	1548	1546	1543	1541	0	0	1	1	1	1	2	2	2
65	1538	1536	1534	1531	1529	1527	1524	1522	1520	1517	0	0	1	1	1	1	2	2	2
66	1515	1513	1511	1508	1506	1504	1502	1499	1497	1495	0	0	1	1	1	1	2	2	2
67	1493	1490	1488	1486	1484	1481	1479	1477	1475	1473	0	0	1	1	1	1	2	2	2
68	1471	1468	1466	1464	1462	1460	1458	1456	1453	1451	0	0	1	1	1	1	2	2	2
69	1449	1447	1445	1443	1441	1439	1437	1435	1433	1431	0	0	1	1	1	1	2	2	2
70	1429	1427	1425	1422	1420	1418	1416	1414	1412	1410	0	0	1	1	1	1	1	2	2
71	1408	1406	1404	1403	1401	1399	1397	1395	1393	1391	0	0	1	1	1	1	1	2	2
72	1389	1387	1385	1383	1381	1379	1377	1376	1374	1372	0	0	1	1	1	1	1	2	2
73	1370	1368	1366	1364	1362	1361	1359	1357	1355	1353	0	0	1	1	1	1	1	1	2
74	1351	1350	1348	1346	1344	1342	1340	1339	1337	1335	0	0	1	1	1	1	1	1	2
75	1333	1332	1330	1328	1326	1325	1323	1321	1319	1318	0	0	1	1	1	1	1	1	2
76	1316	1314	1312	1311	1309	1307	1305	1304	1302	1300	0	0	1	1	1	1	1	1	2
77	1299	1297	1295	1294	1292	1290	1289	1287	1285	1284	0	0	0	1	1	1	1	1	1
78	1282	1280	1279	1277	1276	1274	1272	1271	1269	1267	0	0	0	1	1	1	1	1	1
79	1266	1264	1263	1261	1259	1258	1256	1255	1253	1252	0	0	0	1	1	1	1	1	1
80	1250	1248	1247	1245	1244	1242	1241	1239	1238	1236	0	0	0	1	1	1	1	1	1
81	1235	1233	1232	1230	1229	1227	1225	1224	1222	1221	0	0	0	1	1	1	1	1	1
82	1220	1218	1217	1215	1214	1212	1211	1209	1208	1206	0	0	0	1	1	1	1	1	1
83	1205	1203	1202	1200	1199	1198	1196	1195	1193	1192	0	0	0	1	1	1	1	1	1
84	1190	1189	1188	1186	1185	1183	1182	1181	1179	1178	0	0	0	1	1	1	1	1	1
85	1176	1175	1174	1172	1171	1170	1168	1167	1166	1164	0	0	0	1	1	1	1	1	1
86	1163	1161	1160	1159	1157	1156	1155	1153	1152	1151	0	0	0	1	1	1	1	1	1
87	1149	1148	1147	1145	1144	1143	1142	1140	1139	1138	0	0	0	1	1	1	1	1	1
88	1136	1135	1134	1133	1131	1130	1129	1127	1126	1125	0	0	0	1	1	1	1	1	1
89	1124	1122	1121	1120	1119	1117	1116	1115	1114	1112	0	0	0	0	1	1	1	1	1
90	1111	1110	1109	1107	1106	1105	1104	1103	1101	1100	0	0	0	0	1	1	1	1	1
91	1099	1098	1096	1095	1094	1093	1092	1091	1089	1088	0	0	0	0	1	1	1	1	1
92	1087	1086	1085	1083	1082	1081	1080	1079	1078	1076	0	0	0	0	1	1	1	1	1
93	1075	1074	1073	1072	1071	1070	1068	1067	1066	1065	0	0	0	0	1	1	1	1	1
94	1064	1063	1062	1060	1059	1058	1057	1056	1055	1054	0	0	0	0	1	1	1	1	1
95	1053	1052	1050	1049	1048	1047	1046	1045	1044	1043	0	0	0	0	1	1	1	1	1
96	1042	1041	1040	1038	1037	1036	1035	1034	1033	1032	0	0	0	0	1	1	1	1	1
97	1031	1030	1029	1028	1027	1026	1025	1024	1022	1021	0	0	0	0	1	1	1	1	1
98	1020	1019	1018	1017	1016	1015	1014	1013	1012	1011	0	0	0	0	1	1	1	1	1
99	1010	1009	1008	1007	1006	1005	1004	1003	1002	1001	0	0	0	0	1	1	1	1	1
	O	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9

17

CUADRADOS

	O	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
1.0	1.000	1.020	1.040	1.061	1.082	1.103	1.124	1.145	1.166	1.188	2	4	6	8	10	13	15	17	19
1.1	1.210	1.232	1.254	1.277	1.300	1.323	1.346	1.369	1.392	1.416	2	5	7	9	11	14	16	18	21
1.2	1.440	1.464	1.488	1.513	1.538	1.563	1.588	1.613	1.638	1.664	2	5	7	10	12	15	17	20	22
1.3	1.690	1.716	1.742	1.769	1.796	1.823	1.850	1.877	1.904	1.932	3	5	8	11	13	16	19	22	24
1.4	1.960	1.988	2.016	2.045	2.074	2.103	2.132	2.161	2.190	2.220	3	6	9	12	14	17	20	23	26
1.5	2.250	2.280	2.310	2.341	2.372	2.403	2.434	2.465	2.496	2.528	3	6	9	12	15	19	22	25	28
1.6	2.560	2.592	2.624	2.657	2.690	2.723	2.756	2.789	2.822	2.856	3	7	10	13	16	20	23	26	30
1.7	2.890	2.924	2.958	2.993	3.028	3.063	3.098	3.133	3.168	3.204	3	7	10	14	17	21	24	28	31
1.8	3.240	3.276	3.312	3.349	3.386	3.423	3.460	3.497	3.534	3.572	4	7	11	15	18	22	26	30	33
1.9	3.610	3.648	3.686	3.725	3.764	3.803	3.842	3.881	3.920	3.960	4	8	12	16	19	23	27	31	35
2.0	4.000	4.040	4.080	4.121	4.162	4.203	4.244	4.285	4.326	4.368	4	8	12	16	20	25	29	33	37
2.1	4.410	4.452	4.494	4.537	4.580	4.623	4.666	4.709	4.752	4.796	4	9	13	17	21	26	30	34	39
2.2	4.840	4.884	4.928	4.973	5.018	5.063	5.108	5.153	5.198	5.244	4	9	13	18	22	27	31	36	40
2.3	5.290	5.336	5.382	5.429	5.476	5.523	5.570	5.617	5.664	5.712	5	9	14	19	23	28	33	38	42
2.4	5.760	5.808	5.856	5.905	5.954	6.003	6.052	6.101	6.150	6.200	5	10	15	20	24	29	34	39	44
2.5	6.250	6.300	6.350	6.401	6.452	6.503	6.554	6.605	6.656	6.708	5	10	15	20	25	31	36	41	46
2.6	6.760	6.812	6.864	6.917	6.970	7.023	7.076	7.129	7.182	7.236	5	11	16	21	26	32	37	42	48
2.7	7.290	7.344	7.398	7.453	7.508	7.563	7.618	7.673	7.728	7.784	5	11	16	22	27	33	38	44	49
2.8	7.840	7.896	7.952	8.009	8.066	8.123	8.180	8.237	8.294	8.352	6	11	17	23	28	34	40	46	51
2.9	8.410	8.468	8.526	8.585	8.644	8.703	8.762	8.821	8.880	8.940	6	12	18	24	29	35	41	47	53
3.0	9.000	9.060	9.120	9.181	9.242	9.303	9.364	9.425	9.486	9.548	6	12	18	24	30	37	43	49	55
3.1	9.610	9.672	9.734	9.797	9.860	9.923	9.986	10.05	10.11	10.18	6	13	19	25	31	38	44	50	57
3.2	10.24	10.30	10.37	10.43	10.50	10.56	10.63	10.69	10.76	10.82	1	1	2	3	3	4	5	5	6
3.3	10.89	10.96	11.02	11.09	11.16	11.22	11.29	11.36	11.42	11.49	1	1	2	3	3	4	5	5	6
3.4	11.56	11.63	11.70	11.76	11.83	11.90	11.97	12.04	12.11	12.18	1	1	2	3	3	4	5	6	6
3.5	12.25	12.32	12.39	12.46	12.53	12.60	12.67	12.74	12.82	12.89	1	1	2	3	4	4	5	6	6
3.6	12.96	13.03	13.10	13.18	13.25	13.32	13.40	13.47	13.54	13.62	1	1	2	3	4	4	5	6	7
3.7	13.69	13.76	13.84	13.91	13.99	14.06	14.14	14.21	14.29	14.36	1	2	2	3	4	5	5	6	7
3.8	14.44	14.52	14.59	14.67	14.75	14.82	14.90	14.98	15.05	15.13	1	2	2	3	4	5	5	6	7
3.9	15.21	15.29	15.37	15.44	15.52	15.60	15.68	15.76	15.84	15.92	1	2	2	3	4	5	6	6	7
4.0	16.00	16.08	16.16	16.24	16.32	16.40	16.48	16.56	16.65	16.73	1	2	2	3	4	5	6	6	7
4.1	16.81	16.89	16.97	17.06	17.14	17.22	17.31	17.39	17.47	17.56	1	2	2	3	4	5	6	7	7
4.2	17.64	17.72	17.81	17.89	17.98	18.06	18.15	18.23	18.32	18.40	1	2	3	3	4	5	6	7	8
4.3	18.49	18.58	18.66	18.75	18.84	18.92	19.01	19.10	19.18	19.27	1	2	3	3	4	5	6	7	8
4.4	19.36	19.45	19.54	19.62	19.71	19.80	19.89	19.98	20.07	20.16	1	2	3	4	5	5	6	7	8
4.5	20.25	20.34	20.43	20.52	20.61	20.70	20.79	20.88	20.98	21.07	1	2	3	4	5	5	6	7	8
4.6	21.16	21.25	21.34	21.44	21.53	21.62	21.72	21.81	21.90	22.00	1	2	3	4	5	6	7	7	8
4.7	22.09	22.18	22.28	22.37	22.47	22.56	22.66	22.75	22.85	22.94	1	2	3	4	5	6	7	8	9
4.8	23.04	23.14	23.23	23.33	23.43	23.52	23.62	23.72	23.81	23.91	1	2	3	4	5	6	7	8	9
4.9	24.01	24.11	24.21	24.30	24.40	24.50	24.60	24.70	24.80	24.90	1	2	3	4	5	6	7	8	9
5.0	25.00	25.10	25.20	25.30	25.40	25.50	25.60	25.70	25.81	25.91	1	2	3	4	5	6	7	8	9
5.1	26.01	26.11	26.21	26.32	26.42	26.52	26.63	26.73	26.83	26.94	1	2	3	4	5	6	7	8	9
5.2	27.04	27.14	27.25	27.35	27.46	27.56	27.67	27.77	27.88	27.98	1	2	3	4	5	6	7	9	10
5.3	28.09	28.20	28.30	28.41	28.52	28.62	28.73	28.84	28.94	29.05	1	2	3	4	5	6	7	9	10
5.4	29.16	29.27	29.38	29.48	29.59	29.70	29.81	29.92	30.03	30.14	1	2	3	4	5	7	8	9	10
	O	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9

CUADRADOS

	O	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
1.0	1.000	1.020	1.040	1.061	1.082	1.103	1.124	1.145	1.166	1.188	2	4	6	8	10	13	15	17	19
1.1	1.210	1.232	1.254	1.277	1.300	1.323	1.346	1.369	1.392	1.416	2	5	7	9	11	14	16	18	21
1.2	1.440	1.464	1.488	1.513	1.538	1.563	1.588	1.613	1.638	1.664	2	5	7	10	12	15	17	20	22
1.3	1.690	1.716	1.742	1.769	1.796	1.823	1.850	1.877	1.904	1.932	3	5	8	11	13	16	19	22	24
1.4	1.960	1.988	2.016	2.045	2.074	2.103	2.132	2.161	2.190	2.220	3	6	9	12	14	17	20	23	26
1.5	2.250	2.280	2.310	2.341	2.372	2.403	2.434	2.465	2.496	2.528	3	6	9	12	15	19	22	25	28
1.6	2.560	2.592	2.624	2.657	2.690	2.723	2.756	2.789	2.822	2.856	3	7	10	13	16	20	23	26	30
1.7	2.890	2.924	2.958	2.993	3.028	3.063	3.098	3.133	3.168	3.204	3	7	10	14	17	21	24	28	31
1.8	3.240	3.276	3.312	3.349	3.386	3.423	3.460	3.497	3.534	3.572	4	7	11	15	18	22	26	30	33
1.9	3.610	3.648	3.686	3.725	3.764	3.803	3.842	3.881	3.920	3.960	4	8	12	16	19	23	27	31	35
2.0	4.000	4.040	4.080	4.121	4.162	4.203	4.244	4.285	4.326	4.368	4	8	12	16	20	25	29	33	37
2.1	4.410	4.452	4.494	4.537	4.580	4.623	4.666	4.709	4.752	4.796	4	9	13	17	21	26	30	34	39
2.2	4.840	4.884	4.928	4.973	5.018	5.063	5.108	5.153	5.198	5.244	4	9	13	18	22	27	31	36	40
2.3	5.290	5.336	5.382	5.429	5.476	5.523	5.570	5.617	5.664	5.712	5	9	14	19	23	28	33	38	42
2.4	5.760	5.808	5.856	5.905	5.954	6.003	6.052	6.101	6.150	6.200	5	10	15	20	24	29	34	39	44
2.5	6.250	6.300	6.350	6.401	6.452	6.503	6.554	6.605	6.656	6.708	5	10	15	20	25	31	36	41	46
2.6	6.760	6.812	6.864	6.917	6.970	7.023	7.076	7.129	7.182	7.236	5	11	16	21	26	32	37	42	48
2.7	7.290	7.344	7.398	7.453	7.508	7.563	7.618	7.673	7.728	7.784	5	11	16	22	27	33	38	44	49
2.8	7.840	7.896	7.952	8.009	8.066	8.123	8.180	8.237	8.294	8.352	6	11	17	23	28	34	40	46	51
2.9	8.410	8.468	8.526	8.585	8.644	8.703	8.762	8.821	8.880	8.940	6	12	18	24	29	35	41	47	53
3.0	9.000	9.060	9.120	9.181	9.242	9.303	9.364	9.425	9.486	9.548	6	12	18	24	30	37	43	49	55
3.1	9.610	9.672	9.734	9.797	9.860	9.923	9.986	10.05	10.11	10.18	6	13	19	25	31	38	44	50	57
3.2	10.24	10.30	10.37	10.43	10.50	10.56	10.63	10.69	10.76	10.82	1	1	2	3	3	4	5	5	6
3.3	10.89	10.96	11.02	11.09	11.16	11.22	11.29	11.36	11.42	11.49	1	1	2	3	3	4	5	5	6
3.4	11.56	11.63	11.70	11.76	11.83	11.90	11.97	12.04	12.11	12.18	1	1	2	3	3	4	5	6	6
3.5	12.25	12.32	12.39	12.46	12.53	12.60	12.67	12.74	12.82	12.89	1	1	2	3	4	4	5	6	6
3.6	12.96	13.03	13.10	13.18	13.25	13.32	13.40	13.47	13.54	13.62	1	1	2	3	4	4	5	6	7
3.7	13.69	13.76	13.84	13.91	13.99	14.06	14.14	14.21	14.29	14.36	1	2	2	3	4	5	5	6	7
3.8	14.44	14.52	14.59	14.67	14.75	14.82	14.90	14.98	15.05	15.13	1	2	2	3	4	5	5	6	7
3.9	15.21	15.29	15.37	15.44	15.52	15.60	15.68	15.76	15.84	15.92	1	2	2	3	4	5	6	6	7
4.0	16.00	16.08	16.16	16.24	16.32	16.40	16.48	16.56	16.65	16.73	1	2	2	3	4	5	6	6	7
4.1	16.81	16.89	16.97	17.06	17.14	17.22	17.31	17.39	17.47	17.56	1	2	2	3	4	5	6	7	7
4.2	17.64	17.72	17.81	17.89	17.98	18.06	18.15	18.23	18.32	18.40	1	2	3	3	4	5	6	7	8
4.3	18.49	18.58	18.66	18.75	18.84	18.92	19.01	19.10	19.18	19.27	1	2	3	3	4	5	6	7	8
4.4	19.36	19.45	19.54	19.62	19.71	19.80	19.89	19.98	20.07	20.16	1	2	3	4	5	5	6	7	8
4.5	20.25	20.34	20.43	20.52	20.61	20.70	20.79	20.88	20.98	21.07	1	2	3	4	5	5	6	7	8
4.6	21.16	21.25	21.34	21.44	21.53	21.62	21.72	21.81	21.90	22.00	1	2	3	4	5	6	7	7	8
4.7	22.09	22.18	22.28	22.37	22.47	22.56	22.66	22.75	22.85	22.94	1	2	3	4	5	6	7	8	9
4.8	23.04	23.14	23.23	23.33	23.43	23.52	23.62	23.72	23.81	23.91	1	2	3	4	5	6	7	8	9
4.9	24.01	24.11	24.21	24.30	24.40	24.50	24.60	24.70	24.80	24.90	1	2	3	4	5	6	7	8	9
5.0	25.00	25.10	25.20	25.30	25.40	25.50	25.60	25.70	25.81	25.91	1	2	3	4	5	6	7	8	9
5.1	26.01	26.11	26.21	26.32	26.42	26.52	26.63	26.73	26.83	26.94	1	2	3	4	5	6	7	8	9
5.2	27.04	27.14	27.25	27.35	27.46	27.56	27.67	27.77	27.88	27.98	1	2	3	4	5	6	7	8	9
5.3	28.09	28.20	28.30	28.41	28.52	28.62	28.73	28.84	28.94	29.05	1	2	3	4	5	6	7	9	10
5.4	29.16	29.27	29.38	29.48	29.59	29.70	21.81	29.92	30.03	30.14	1	2	3	4	5	7	8	9	10
	O	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9

CUADRADOS

	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
5.5	30.25	30.36	30.47	30.58	30.09	30.80	30.91	31.02	31.14	31.25	1	2	3	4	6	7	8	9	10
5.6	31.36	31.47	31.58	31.70	31.81	31.92	32.04	32.15	32.26	32.38	1	2	3	5	6	7	8	9	10
5.7	32.49	32.60	32.72	32.83	32.95	33.06	33.18	33.29	33.41	33.52	1	2	3	5	6	7	8	9	10
5.8	33.64	33.76	33.87	33.99	34.11	34.22	34.34	34.46	34.57	34.69	1	2	4	5	6	7	8	9	11
5.9	34.81	34.93	35.05	35.16	35.28	35.40	35.52	35.64	35.76	35.88	1	2	4	5	6	7	8	10	11
6.0	36.00	36.12	36.24	36.36	36.48	36.60	36.72	36.84	36.97	37.09	1	2	4	5	6	7	8	10	11
6.1	37.21	37.33	37.45	37.58	37.70	37.82	37.95	38.07	38.19	38.32	1	2	4	5	6	7	9	10	11
6.2	38.44	38.56	38.69	38.81	38.94	39.06	39.19	39.31	39.44	39.56	1	3	4	5	6	8	9	10	11
6.3	39.69	39.82	39.94	40.07	40.20	40.32	40.45	40.58	40.70	40.83	1	3	4	5	6	8	9	10	11
6.4	40.96	41.09	41.22	41.34	41.47	41.60	41.73	41.86	41.99	42.12	1	3	4	5	6	8	9	10	12
6.5	42.25	42.38	42.51	42.64	42.77	42.90	43.03	43.16	43.30	43.43	1	3	4	5	7	8	9	10	12
6.6	43.56	43.69	43.82	43.96	44.09	44.22	44.36	44.49	44.62	44.76	1	3	4	5	7	8	9	11	12
6.7	44.89	45.02	45.16	45.29	45.43	45.56	45.70	45.83	45.97	46.10	1	3	4	5	7	8	9	11	12
6.8	46.24	46.38	46.51	46.65	46.79	46.92	47.06	47.20	47.33	47.47	1	3	4	5	7	8	10	11	12
6.9	47.61	47.75	47.89	48.02	48.16	48.30	48.44	48.58	48.72	48.86	1	3	4	6	7	8	10	11	13
7.0	49.00	49.14	49.28	49.42	49.56	49.70	49.84	49.98	50.13	50.27	1	3	4	6	7	8	10	11	13
7.1	50.41	50.55	50.69	50.84	50.98	51.12	51.27	51.41	51.55	51.70	1	3	4	6	7	9	10	11	13
7.2	51.84	51.98	52.13	52.27	52.42	52.56	52.71	52.85	53.00	53.14	1	3	4	6	7	9	10	12	13
7.3	53.29	53.44	53.58	53.73	53.88	54.02	54.17	54.32	54.46	54.61	1	3	4	6	7	9	10	12	13
7.4	54.76	54.91	55.06	55.20	55.35	55.50	55.65	55.80	55.95	56.10	1	3	4	6	7	9	10	12	13
7.5	56.25	56.40	56.55	56.70	56.85	57.00	57.15	57.30	57.46	57.61	2	3	5	6	8	9	11	12	14
7.6	57.76	57.91	58.06	58.22	58.37	58.52	58.68	58.83	58.98	59.14	2	3	5	6	8	9	11	12	14
7.7	59.29	59.44	59.60	59.75	59.91	60.06	60.22	60.37	60.53	60.68	2	3	5	6	8	9	11	12	14
7.8	60.84	61.00	61.15	61.31	61.47	61.62	61.78	61.94	62.09	62.25	2	3	5	6	8	9	11	13	14
7.9	62.41	62.57	62.73	62.88	63.04	63.20	63.36	63.52	63.68	63.84	2	3	5	6	8	10	11	13	14
8.0	64.00	64.16	64.32	64.48	64.64	64.80	64.96	65.12	65.29	65.45	2	3	5	6	8	10	11	13	14
8.1	65.61	65.77	65.93	66.10	66.26	66.42	66.59	66.75	66.91	67.08	2	3	5	7	8	10	11	13	15
8.2	67.24	67.40	67.57	67.73	67.90	68.06	68.23	68.39	68.56	68.72	2	3	5	7	8	10	12	13	15
8.3	68.89	69.06	69.22	69.39	69.56	69.72	69.89	70.06	70.22	70.39	2	3	5	7	8	10	12	13	15
8.4	70.56	70.73	70.90	71.06	71.23	71.40	71.57	71.74	71.91	72.08	2	3	5	7	8	10	12	14	15
8.5	72.25	72.42	72.59	72.76	72.93	73.10	73.27	73.44	73.62	73.79	2	3	5	7	9	10	12	14	15
8.6	73.96	74.13	74.30	74.48	74.65	74.82	75.00	75.17	75.34	75.52	2	3	5	7	9	10	12	14	16
8.7	75.69	75.86	76.04	76.21	76.39	76.56	76.74	76.91	77.09	77.26	2	4	5	7	9	11	12	14	16
8.8	77.44	77.62	77.79	77.97	78.15	78.32	78.50	78.68	78.85	79.03	2	4	5	7	9	11	13	14	16
8.9	79.21	79.39	79.57	79.74	79.92	80.10	80.28	80.46	80.64	80.82	2	4	5	7	9	11	13	14	16
9.0	81.00	81.18	81.36	81.54	81.72	81.90	82.08	82.26	82.45	82.63	2	4	5	7	9	11	13	14	16
9.1	82.81	82.99	83.17	83.36	83.54	83.72	83.91	84.09	84.27	84.46	2	4	5	7	9	11	13	15	16
9.2	84.64	84.82	85.01	85.19	85.38	85.56	85.75	85.93	86.12	86.30	2	4	6	7	9	11	13	15	17
9.3	86.49	86.68	86.86	87.05	87.24	87.42	87.61	87.80	87.98	88.17	2	4	6	7	9	11	13	15	17
9.4	88.36	88.55	88.74	88.92	89.11	89.30	89.49	89.68	89.87	90.06	2	4	6	8	9	11	13	15	17
9.5	90.25	90.44	90.63	90.82	91.01	91.20	91.39	91.58	91.78	91.97	2	4	6	8	10	11	13	15	17
9.6	92.16	92.35	92.54	92.74	92.93	93.12	93.32	93.51	93.70	93.90	2	4	6	8	10	12	14	15	17
9.7	94.09	94.28	94.48	94.67	94.87	95.06	95.26	95.45	95.65	95.84	2	4	6	8	10	12	14	16	18
9.8	96.04	96.24	96.43	96.63	96.83	97.02	97.22	97.42	97.61	97.81	2	4	6	8	10	12	14	16	18
9.9	98.01	98.21	98.41	98.60	98.80	99.00	99.20	99.40	99.60	99 80	2	4	6	8	10	12	14	16	18
	O	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9

RAICES CUADRADAS DE 100 A 1000

	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
10	10.00	10.05	10.10	10.15	10.20	10.25	10.30	10.34	10.39	10.44	0	1	1	2	2	3	3	4	4
11	10.49	10.54	10.58	10.63	10.68	10.72	10.77	10.82	10.86	10.91	0	1	1	2	2	3	3	4	4
12	10.95	11.00	11.05	11.09	11.14	11.18	11.22	11.27	11.31	11.36	0	1	1	2	2	3	3	4	4
13	11.40	11.45	11.49	11.53	11.58	11.62	11.66	11.70	11.75	11.79	0	1	1	2	2	3	3	3	4
14	11.83	11.87	11.92	11.96	12.00	12.04	12.08	12.12	12.17	12.21	0	1	1	2	2	2	3	3	4
15	12.25	12.29	12.33	12.37	12.41	12.45	12.49	12.53	12.57	12.61	0	1	1	2	2	2	3	3	4
16	12.65	12.69	12.73	12.77	12.81	12.85	12.88	12.92	12.96	13.00	0	1	1	2	2	2	3	3	4
17	13.04	13.08	13.11	13.15	13.19	13.23	13.27	13.30	13.34	13.38	0	1	1	2	2	2	3	3	3
18	13.42	13.45	13.49	13.53	13.56	13.60	13.64	13.67	13.71	13.75	0	1	1	1	2	2	3	3	3
19	13.78	13.82	13.86	13.89	13.93	13.96	14.00	14.04	14.07	14.11	0	1	1	1	2	2	3	3	3
20	14.14	14.18	14.21	14.25	14.28	14.32	14.35	14.39	14.42	14.46	0	1	1	1	2	2	2	3	3
21	14.49	14.53	14.56	14.59	14.63	14.66	14.70	14.73	14.76	14.80	0	1	1	1	2	2	2	3	3
22	14.83	14.87	14.90	14.93	14.97	15.00	15.03	15.07	15.10	15.13	0	1	1	1	2	2	2	3	3
23	15.17	15.20	15.23	15.26	15.30	15.33	15.36	15.39	15.43	15.46	0	1	1	1	2	2	2	3	3
24	15.49	15.52	15.56	15.59	15.62	15.65	15.68	15.72	15.75	15.78	0	1	1	1	2	2	2	3	3
25	15.81	15.84	15.87	15.91	15.94	15.97	16.00	16.03	16.06	16.09	0	1	1	1	2	2	2	3	3
26	16.12	16.16	16.19	16.22	16.25	16.28	16.31	16.34	16.37	16.40	0	1	1	1	2	2	2	2	3
27	16.43	16.46	16.49	16.52	16.55	16.58	16.61	16.64	16.67	16.70	0	1	1	1	1	2	2	2	3
28	16.73	16.76	16.79	16.82	16.85	16.88	16.91	16.94	16.97	17.00	0	1	1	1	1	2	2	2	3
29	17.03	17.06	17.09	17.12	17.15	17.18	17.20	17.23	17.26	17.29	0	1	1	1	1	2	2	2	3
30	17.32	17.35	17.38	17.41	17.44	17.46	17.49	17.52	17.55	17.58	0	1	1	1	1	2	2	2	3
31	17.61	17.64	17.66	17.69	17.72	17.75	17.78	17.80	17.83	17.86	0	1	1	1	1	2	2	2	3
32	17.89	17.92	17.94	17.97	18.00	18.03	18.06	18.08	18.11	18.14	0	1	1	1	1	2	2	2	2
33	18.17	18.19	18.22	18.25	18.28	18.30	18.33	18.36	18.38	18.41	0	1	1	1	1	2	2	2	2
34	18.44	18.47	18.49	18.52	18.55	18.57	18.60	18.63	18.65	18.68	0	1	1	1	1	2	2	2	2
35	18.71	18.73	18.76	18.79	18.81	18.84	18.87	18.89	18.92	18.95	0	1	1	1	1	2	2	2	2
36	18.97	19.00	19.03	19.05	19.08	19.10	19.13	19.16	19.18	19.21	0	1	1	1	1	2	2	2	2
37	19.24	19.26	19.29	19.31	19.34	19.36	19.39	19.42	19.44	19.47	0	1	1	1	1	2	2	2	2
38	19.49	19.52	19.54	19.57	19.60	19.62	19.65	19.67	19.70	19.72	0	1	1	1	1	2	2	2	2
39	19.75	19.77	19.80	19.82	19.85	19.87	19.90	19.92	19.95	19.97	0	1	1	1	1	2	2	2	2
40	20.00	20.02	20.05	20.07	20.10	20.12	20.15	20.17	20.20	20.22	0	0	1	1	1	1	2	2	2
41	20.25	20.27	20.30	20.32	20.35	20.37	20.40	20.42	20.45	20.47	0	0	1	1	1	1	2	2	2
42	20.49	20.52	20.54	20.57	20.59	20.62	20.64	20.66	20.69	20.71	0	0	1	1	1	1	2	2	2
43	20.74	20.76	20.78	20.81	20.83	20.86	20.88	20.90	20.93	20.95	0	0	1	1	1	1	2	2	2
44	20.98	21.00	21.02	21.05	21.07	21.10	21.12	21.14	21.17	21.19	0	0	1	1	1	1	2	2	2
45	21.21	21.24	21.26	21.28	21.31	21.33	21.35	21.38	21.40	21.42	0	0	1	1	1	1	2	2	2
46	21.45	21.47	21.49	21.52	21.54	21.56	21.59	21.61	21.63	21.66	0	0	1	1	1	1	2	2	2
47	21.68	21.70	21.73	21.75	21.77	21.79	21.82	21.84	21.86	21.89	0	0	1	1	1	1	2	2	2
48	21.91	21.93	21.95	21.98	22.00	22.02	22.05	22.07	22.09	22.11	0	0	1	1	1	1	2	2	2
49	22.14	22.16	22.18	22.20	22.23	22.25	22.27	22.29	22.32	22.34	0	0	1	1	1	1	2	2	2
50	22.36	22.38	22.41	22.43	22.45	22.47	22.49	22.52	22.54	22.56	0	0	1	1	1	1	2	2	2
51	22.58	22.61	22.63	22.65	22.67	22.69	22.72	22.74	22.76	22.78	0	0	1	1	1	1	2	2	2
52	22.80	22.83	22.85	22.87	22.89	22.91	22.93	22.96	22.98	23.00	0	0	1	1	1	1	2	2	2
53	23.02	23.04	23.07	23.09	23.11	23.13	23.15	23.17	23.19	23.22	0	0	1	1	1	1	2	2	2
54	23.24	23.26	23.28	23.30	23.32	23.35	23.37	23.39	23.41	23.43	0	0	1	1	1	1	1	2	2
	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9

RAICES CUADRADAS DE 100 A 1000

	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
55	23.45	23.47	23.49	23.52	23.54	23.56	23.58	23.60	23.62	23.64	0	0	1	1	1	1	1	2	2
56	23.66	23.69	23.71	23.73	23.75	23.77	23.79	23.81	23.83	23.85	0	0	1	1	1	1	1	2	2
57	23.87	23.90	23.92	23.94	23.96	23.98	24.00	24.02	24.04	24.06	0	0	1	1	1	1	1	2	2
58	24.08	24.10	24.12	24.15	24.17	24.19	24.21	24.23	24.25	24.27	0	0	1	1	1	1	1	2	2
59	24.29	24.31	24.33	24.35	24.37	24.39	24.41	24.43	24.45	24.47	0	0	1	1	1	1	1	2	2
60	24.49	24.52	24.54	24.56	24.58	24.60	24.62	24.64	24.66	24.68	0	0	1	1	1	1	1	2	2
61	24.70	24.72	24.74	24.76	24.78	24.80	24.82	24.84	24.86	24.88	0	0	1	1	1	1	1	2	2
62	24.90	24.92	24.94	24.96	24.98	25.00	25.02	25.04	25.06	25.08	0	0	1	1	1	1	1	2	2
63	25.10	25.12	25.14	25.16	25.18	25.20	25.22	25.24	25.26	25.28	0	0	1	1	1	1	1	2	2
64	25.30	25.32	25.34	25.36	25.38	25.40	25.42	25.44	25.46	25.48	0	0	1	1	1	1	1	2	2
65	25.50	25.51	25.53	25.55	25.57	25.59	25.61	25.63	25.65	25.67	0	0	1	1	1	1	1	2	2
66	25.69	25.71	25.73	25.75	25.77	25.79	25.81	25.83	25.85	25.87	0	0	1	1	1	1	1	2	2
67	25.88	25.90	25.92	25.94	25.96	25.98	26.00	26.02	26.04	26.06	0	0	1	1	1	1	1	2	2
68	26.08	26.10	26.12	26.13	26.15	26.17	26.19	26.21	26.23	26.25	0	0	1	1	1	1	1	2	2
69	26.27	26.29	26.31	26.32	26.34	26.36	26.38	26.40	26.42	26.44	0	0	1	1	1	1	1	2	2
70	26.46	26.48	26.50	26.51	26.53	26.55	26.57	26.59	26.61	26.63	0	0	1	1	1	1	1	2	2
71	26.65	26.66	26.68	26.70	26.72	26.74	26.76	26.78	26.80	26.81	0	0	1	1	1	1	1	1	2
72	26.83	26.85	26.87	26.89	26.91	26.93	26.94	26.96	26.98	27.00	0	0	1	1	1	1	1	1	2
73	27.02	27.04	27.06	27.07	27.09	27.11	27.13	27.15	27.17	27.18	0	0	1	1	1	1	1	1	2
74	27.20	27.22	27.24	27.26	27.28	27.29	27.31	27.33	27.35	27.37	0	0	1	1	1	1	1	1	2
75	27.39	27.40	27.42	27.44	27.46	27.48	27.50	27.51	27.53	27.55	0	0	1	1	1	1	1	1	2
76	27.57	27.59	27.60	27.62	27.64	27.66	27.68	27.69	27.71	27.73	0	0	1	1	1	1	1	1	2
77	27.75	27.77	27.78	27.80	27.82	27.84	27.86	27.87	27.89	27.91	0	0	1	1	1	1	1	1	2
78	27.93	27.95	27.96	27.98	28.00	28.02	28.04	28.05	28.07	28.09	0	0	1	1	1	1	1	1	2
79	28.11	28.12	28.14	28.16	28.18	28.20	28.21	28.23	28.25	28.27	0	0	1	1	1	1	1	1	2
80	28.28	28.30	28.32	28.34	28.35	28.37	28.39	28.41	28.43	28.44	0	0	1	1	1	1	1	1	2
81	28.46	28.48	28.50	28.51	28.53	28.55	28.57	28.58	28.60	28.62	0	0	1	1	1	1	1	1	2
82	28.64	28.65	28.67	28.69	28.71	28.72	28.74	28.76	28.77	28.79	0	0	1	1	1	1	1	1	2
83	28.81	28.83	28.84	28.86	28.88	28.90	28.91	28.93	28.95	28.97	0	0	1	1	1	1	1	1	2
84	28.98	29.00	29.02	29.03	29.05	29.07	29.09	29.10	29.12	29.14	0	0	1	1	1	1	1	1	2
85	29.15	29.17	29.19	29.21	29.22	29.24	29.26	29.27	29.29	29.31	0	0	1	1	1	1	1	1	2
86	29.33	29.34	29.36	29.38	29.39	29.41	29.43	29.44	29.46	29.48	0	0	1	1	1	1	1	1	2
87	29.50	29.51	29.53	29.55	29.56	29.58	29.60	29.61	29.63	29.65	0	0	1	1	1	1	1	2	2
88	29.66	29.68	29.70	29.72	29.73	29.75	29.77	29.78	29.80	29.82	0	0	1	1	1	1	1	1	2
89	29.83	29.85	29.87	29.88	29.90	29.92	29.93	29.95	29.97	29.98	0	0	1	1	1	1	1	1	2
90	30.00	30.02	30.03	30.05	30.07	30.08	30.10	30.12	30.13	30.15	0	0	0	1	1	1	1	1	1
91	30.17	30.18	30.20	30.22	30.23	30.25	30.27	30.28	30.30	30.32	0	0	0	1	1	1	1	1	1
92	30.33	30.35	30.36	30.38	30.40	30.41	30.43	30.45	30.46	30.48	0	0	0	1	1	1	1	1	1
93	30.50	30.51	30.53	30.55	30.56	30.58	30.59	30.61	30.63	30.64	0	0	0	1	1	1	1	1	1
94	30.66	30.68	30.69	30.71	30.72	30.74	30.76	30.77	30.79	30.81	0	0	0	1	1	1	1	1	1
95	30.82	30.84	30.85	30.87	30.89	30.90	30.92	30.94	30.95	30.97	0	0	0	1	1	1	1	1	1
96	30.98	31.00	31.02	31.03	31.05	31.06	31.08	31.10	31.11	31.13	0	0	0	1	1	1	1	1	1
97	31.14	31.16	31.18	31.19	31.21	31.22	31.24	31.26	31.27	31.29	0	0	0	1	1	1	1	1	1
98	31.30	31.32	31.34	31.35	31.37	31.38	31.40	31.42	31.43	31.45	0	0	0	1	1	1	1	1	1
99	31.46	31.48	31.50	31.51	31.53	31.54	31.56	31.58	31.59	31.61	0	0	0	1	1	1	1	1	1
	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9

RAICES CUADRADAS DE 1000 A 10000

	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
10	31.62	31.78	31.94	32.09	32.25	32.40	32.56	32.71	32.86	33.02	2	3	5	6	8	9	11	12	14
11	33.17	33.32	33.47	33.62	33.76	33.91	34.06	34.21	34.35	34.50	1	3	4	6	7	9	10	12	13
12	34.64	34.79	34.93	35.07	35.21	35.36	35.50	35.64	35.78	35.92	1	3	4	6	7	8	10	11	13
13	36.06	36.19	36.33	36.47	36.61	36.74	36.88	37.01	37.15	37.28	1	3	4	5	7	8	10	11	12
14	37.42	37.55	37.68	37.82	37.95	38.08	38.21	38.34	38.47	38.60	1	3	4	5	7	8	9	11	12
15	38.73	38.86	38.99	39.12	39.24	39.37	39.50	39.62	39.75	39.87	1	3	4	5	6	8	9	10	11
16	40.00	40.12	40.25	40.37	40.50	40.62	40.74	40.87	40.99	41.11	1	2	4	5	6	7	9	10	11
17	41.23	41.35	41.47	41.59	41.71	41.83	41.95	42.07	42.19	42.31	1	2	4	5	6	7	8	10	11
18	42.43	42.54	42.66	42.78	42.90	43.01	43.13	43.24	43.36	43.47	1	2	3	5	6	7	8	9	10
19	43.59	43.70	43.82	43.93	44.05	44.16	44.27	44.38	44.50	44.61	1	2	3	5	6	7	8	9	10
20	44.72	44.83	44.94	45.06	45.17	45.28	45.39	45.50	45.61	45.72	1	2	3	4	6	7	8	9	10
21	45.83	45.93	46.04	46.15	46.26	46.37	46.48	46.58	46.69	46.80	1	2	3	4	5	6	8	9	10
22	46.90	47.01	47.12	47.22	47.33	47.43	47.54	47.64	47.75	47.85	1	2	3	4	5	6	7	8	9
23	47.96	48.06	48.17	48.27	48.37	48.48	48.58	48.68	48.79	48.89	1	2	3	4	5	6	7	8	9
24	48.99	49.09	49.19	49.30	49.40	49.50	49.60	49.70	49.80	49.90	1	2	3	4	5	6	7	8	9
25	50.00	50.10	50.20	50.30	50.40	50.50	50.60	50.70	50.79	50.89	1	2	3	4	5	6	7	8	9
26	50.99	51.09	51.19	51.28	51.38	51.48	51.58	51.67	51.77	51.87	1	2	3	4	5	6	7	8	9
27	51.96	52.06	52.15	52.25	52.35	52.44	52.54	52.63	52.73	52.82	1	2	3	4	5	6	7	8	9
28	52.92	53.01	53.10	53.20	53.29	53.39	53.48	53.57	53.67	53.76	1	2	3	4	5	6	7	7	8
29	53.85	53.94	54.04	54.13	54.22	54.31	54.41	54.50	54.59	54.68	1	2	3	4	5	6	6	7	8
30	54.77	54.86	54.95	55.05	55.14	55.23	55.32	55.41	55.50	55.59	1	2	3	4	5	5	6	7	8
31	55.68	55.77	55.86	55.95	56.04	56.12	56.21	56.30	56.39	56.48	1	2	3	4	4	5	6	7	8
32	56.57	56.66	56.75	56.83	56.92	57.01	57.10	57.18	57.27	57.36	1	2	3	4	4	5	6	7	8
33	57.45	57.53	57.62	57.71	57.79	57.88	57.97	58.05	58.14	58.22	1	2	3	3	4	5	6	7	8
34	58.31	58.40	58.48	58.57	58.65	58.74	58.82	58.91	58.99	59.08	1	2	3	3	4	5	6	7	8
35	59.16	59.25	59.33	59.41	59.50	59.58	59.67	59.75	59.83	59.92	1	2	3	3	4	5	6	7	8
36	60.00	60.08	60.17	60.25	60.33	60.42	60.50	60.58	60.66	60.75	1	2	2	3	4	5	6	7	7
37	60.83	60.91	60.99	61.07	61.16	61.24	61.32	61.40	61.48	61.56	1	2	2	3	4	5	6	7	7
38	61.64	61.73	61.81	61.89	61.97	62.05	62.13	62.21	62.29	62.37	1	2	2	3	4	5	6	6	7
39	62.45	62.53	62.61	62.69	62.77	62.85	62.93	63.01	63.09	63.17	1	2	2	3	4	5	6	6	7
40	63.25	63.32	63.40	63.48	63.56	63.64	63.72	63.80	63.87	63.95	1	2	2	3	4	5	5	6	7
41	64.03	64.11	64.19	64.27	64.34	64.42	64.50	64.58	64.65	64.73	1	2	2	3	4	5	5	6	7
42	64.81	64.88	64.96	65.04	65.12	65.19	65.27	65.35	65.42	65.50	1	2	2	3	4	5	5	6	7
43	65.57	65.65	65.73	65.80	65.88	65.95	66.03	66.11	66.18	66.26	1	2	2	3	4	5	5	6	7
44	66.33	66.41	66.48	66.56	66.63	66.71	66.78	66.86	66.93	67.01	1	1	2	3	4	4	5	6	7
45	67.08	67.16	67.23	67.31	67.38	67.45	67.53	67.60	67.68	67.75	1	1	2	3	4	4	5	6	7
46	67.82	67.90	67.97	68.04	68.12	68.19	68.26	68.34	68.41	68.48	1	1	2	3	4	4	5	6	7
47	68.56	68.63	68.70	68.77	68.85	68.92	68.99	69.07	69.14	69.21	1	1	2	3	4	4	5	6	7
48	69.28	69.35	69.43	69.50	69.57	69.64	69.71	69.79	69.86	69.93	1	1	2	3	4	4	5	6	6
49	70.00	70.07	70.14	70.21	70.29	70.36	70.43	70.50	70.57	70.64	1	1	2	3	4	4	5	6	6
50	70.71	70.78	70.85	70.92	70.99	71.06	71.13	71.20	71.27	71.34	1	1	2	3	4	4	5	6	6
51	71.41	71.48	71.55	71.62	71.69	71.76	71.83	71.90	71.97	72.04	1	1	2	3	3	4	5	6	6
52	72.11	72.18	72.25	72.32	72.39	72.46	72.53	72.59	72.66	72.73	1	1	2	3	3	4	5	5	6
53	72.80	72.87	72.94	73.01	73.08	73.14	73.21	73.28	73.35	73.42	1	1	2	3	3	4	5	5	6
54	73.48	73.55	73.62	73.69	73.76	73.82	73.89	73.96	74.03	74.09	1	1	2	3	3	4	5	5	6
	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9

RAICES CUADRADAS DE 1000 A 10000

	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
55	74.16	74.23	74.30	74.36	74.43	74.50	74.57	74.63	74.70	74.77	1	1	2	3	3	4	5	5	6
56	74.83	74.90	74.97	75.03	75.10	75.17	75.23	75.30	75.37	75.43	1	1	2	3	3	4	5	5	6
57	75.50	75.56	75.63	75.70	75.76	75.83	75.89	75.96	76.03	76.09	1	1	2	3	3	4	5	5	6
58	76.16	76.22	76.29	76.35	76.42	76.49	76.55	76.62	76.68	76.75	1	1	2	3	3	4	5	5	6
59	76.81	76.88	76.94	77.01	77.07	77.14	77.20	77.27	77.33	77.40	1	1	2	3	3	4	5	5	6
60	77.46	77.52	77.59	77.65	77.72	77.78	77.85	77.91	77.97	78.04	1	1	2	3	3	4	4	5	6
61	78.10	78.17	78.23	78.29	78.36	78.42	78.49	78.55	78.61	78.68	1	1	2	3	3	4	4	5	6
62	78.74	78.80	78.87	78.93	78.99	79.06	79.12	79.18	79.25	79.31	1	1	2	3	3	4	4	5	6
63	79.37	79.44	79.50	79.56	79.62	79.69	79.75	79.81	79.87	79.94	1	1	2	3	3	4	4	5	6
64	80.00	80.06	80.12	80.19	80.25	80.31	80.37	80.44	80.50	80.56	1	1	2	2	3	4	4	5	6
65	80.62	80.68	80.75	80.81	80.87	80.93	80.99	81.06	81.12	81.18	1	1	2	2	3	4	4	5	6
66	81.24	81.30	81.36	81.42	81.49	81.55	81.61	81.67	81.73	81.79	1	1	2	2	3	4	4	5	6
67	81.85	81.91	81.98	82.04	82.10	82.16	82.22	82.28	82.34	82.40	1	1	2	2	3	4	4	5	5
68	82.46	82.52	82.58	82.64	82.70	82.76	82.83	82.89	82.95	83.01	1	1	2	2	3	4	4	5	5
69	83.07	83.13	83.19	83.25	83.31	83.37	83.43	83.49	83.55	83.61	1	1	2	2	3	4	4	5	5
70	83.67	83.73	83.79	83.85	83.90	83.96	84.02	84.08	84.14	84.20	1	1	2	2	3	4	4	5	5
71	84.26	84.32	84.38	84.44	84.50	84.56	84.62	84.68	84.73	84.79	1	1	2	2	3	4	4	5	5
72	84.85	84.91	84.97	85.03	85.09	85.15	85.21	85.26	85.32	85.38	1	1	2	2	3	4	4	5	5
73	85.44	85.50	85.56	85.62	85.67	85.73	85.79	85.85	85.91	85.97	1	1	2	2	3	3	4	5	5
74	86.02	86.08	86.14	86.20	86.26	86.31	86.37	86.43	86.49	86.54	1	1	2	2	3	3	4	5	5
75	86.60	86.66	86.72	86.78	86.83	86.89	86.95	87.01	87.06	87.12	1	1	2	2	3	3	4	5	5
76	87.18	87.24	87.29	87.35	87.41	87.46	87.52	87.58	87.64	87.69	1	1	2	2	3	3	4	5	5
77	87.75	87.81	87.86	87.92	87.98	88.03	88.09	88.15	88.20	88.26	1	1	2	2	3	3	4	5	5
78	88.32	88.37	88.43	88.49	88.54	88.60	88.66	88.71	88.77	88.83	1	1	2	2	3	3	4	5	5
79	88.88	88.94	88.99	89.05	89.11	89.16	89.22	89.27	89.33	89.39	1	1	2	2	3	3	4	4	5
80	89.44	89.50	89.55	89.61	89.67	89.72	89.78	89.83	89.89	89.94	1	1	2	2	3	3	4	4	5
81	90.00	90.06	90.11	90.17	90.22	90.28	90.33	90.39	90.44	90.50	1	1	2	2	3	3	4	4	5
82	90.55	90.61	90.66	90.72	90.77	90.83	90.88	90.94	90.99	91.05	1	1	2	2	3	3	4	4	5
83	91.10	91.16	91.21	91.27	91.32	91.38	91.43	91.49	91.54	91.60	1	1	2	2	3	3	4	4	5
84	91.65	91.71	91.76	91.82	91.87	91.92	91.98	92.03	92.09	92.14	1	1	2	2	3	3	4	4	5
85	92.20	92.25	92.30	92.36	92.41	92.47	92.52	92.57	92.63	92.68	1	1	2	2	3	3	4	4	5
86	92.74	92.79	92.84	92.90	92.95	93.01	93.06	93.11	93.17	93.22	1	1	2	2	3	3	4	4	5
87	93.27	93.33	93.38	93.43	93.49	93.54	93.59	93.65	93.70	93.75	1	1	2	2	3	3	4	4	5
88	93.81	93.86	93.91	93.97	94.02	94.07	94.13	94.18	94.23	94.29	1	1	2	2	3	3	4	4	5
89	94.34	94.39	94.45	94.50	94.55	94.60	94.66	94.71	94.76	94.82	1	1	2	2	3	3	4	4	5
90	94.87	94.92	94.97	95.03	95.08	95.13	95.18	95.24	95.29	95.34	1	1	2	2	3	3	4	4	5
91	95.39	95.45	95.50	95.55	95.60	95.66	95.71	95.76	95.81	95.86	1	1	2	2	3	3	4	4	5
92	95.92	95.97	96.02	96.07	96.12	96.18	96.23	96.28	96.33	96.38	1	1	2	2	3	3	4	4	5
93	96.44	96.49	96.54	96.59	96.64	96.70	96.75	96.80	96.85	96.90	1	1	2	2	3	3	4	4	5
94	96.95	97.01	97.06	97.11	97.16	97.21	97.26	97.31	97.37	97.42	1	1	2	2	3	3	4	4	5
95	97.47	97.52	97.57	97.62	97.67	97.72	97.78	97.83	97.88	97.93	1	1	2	2	3	3	4	4	5
96	97.98	98.03	98.08	98.13	98.18	98.23	98.29	98.34	98.39	98.44	1	1	2	2	3	3	4	4	5
97	98.49	98.54	98.59	98.64	98.69	98.74	98.79	98.84	98.89	98.94	1	1	2	2	3	3	4	4	5
98	98.99	99.05	99.10	99.15	99.20	99.25	99.30	99.35	99.40	99.45	1	1	2	2	3	3	4	4	5
99	99.50	99.55	99.60	99.65	99.70	99.75	99.80	99.85	99.90	99.95	1	1	2	2	3	3	4	4	5
	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9

ANTILOGARITMOS

	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
.00	1000	1002	1005	1007	1009	1012	1014	1016	1019	1021	0	0	1	1	1	1	2	2	2
.01	1023	1026	1028	1030	1033	1035	1038	1040	1042	1045	0	0	1	1	1	1	2	2	2
.02	1047	1050	1052	1054	1057	1059	1062	1064	1067	1069	0	0	1	1	1	1	2	2	2
.03	1072	1074	1076	1079	1081	1084	1086	1089	1091	1094	0	0	1	1	1	1	2	2	2
.04	1096	1099	1102	1104	1107	1109	1112	1114	1117	1119	0	1	1	1	1	2	2	2	2
.05	1122	1125	1127	1130	1132	1135	1138	1140	1143	1146	0	1	1	1	1	2	2	2	2
.06	1148	1151	1153	1156	1159	1161	1164	1167	1169	1172	0	1	1	1	1	2	2	2	2
.07	1175	1178	1180	1183	1186	1189	1191	1194	1197	1199	0	1	1	1	1	2	2	2	2
.08	1202	1205	1208	1211	1213	1216	1219	1222	1225	1227	0	1	1	1	1	2	2	2	3
.09	1230	1233	1236	1239	1242	1245	1247	1250	1253	1256	0	1	1	1	1	2	2	2	3
.10	1259	1262	1265	1268	1271	1274	1276	1279	1282	1285	0	1	1	1	1	2	2	2	3
.11	1288	1291	1294	1297	1300	1303	1306	1309	1312	1315	0	1	1	1	2	2	2	2	3
.12	1318	1321	1324	1327	1330	1334	1337	1340	1343	1346	0	1	1	1	2	2	2	2	3
.13	1349	1352	1355	1358	1361	1365	1368	1371	1374	1377	0	1	1	1	2	2	2	3	3
.14	1380	1384	1387	1390	1393	1396	1400	1403	1406	1409	0	1	1	1	2	2	2	3	3
.15	1413	1416	1419	1422	1426	1429	1432	1435	1439	1442	0	1	1	1	2	2	2	3	3
.16	1445	1449	1452	1455	1459	1462	1466	1469	1472	1476	0	1	1	1	2	2	2	3	3
.17	1479	1483	1486	1489	1493	1496	1500	1503	1507	1510	0	1	1	1	2	2	3	3	3
.18	1514	1517	1521	1524	1528	1531	1535	1538	1542	1545	0	1	1	1	2	2	2	3	3
.19	1549	1552	1556	1560	1563	1567	1570	1574	1578	1581	0	1	1	1	2	2	3	3	3
.20	1585	1589	1592	1596	1600	1603	1607	1611	1614	1618	0	1	1	1	2	2	3	3	3
.21	1622	1626	1629	1633	1637	1641	1644	1648	1652	1656	0	1	1	2	2	2	3	3	3
.22	1660	1663	1667	1671	1675	1679	1683	1687	1690	1694	0	1	1	2	2	2	3	3	3
.23	1698	1702	1706	1710	1714	1718	1722	1726	1730	1734	0	1	1	2	2	2	3	3	4
.24	1738	1742	1746	1750	1754	1758	1762	1766	1770	1774	0	1	1	2	2	2	3	3	4
.25	1778	1782	1786	1791	1795	1799	1803	1807	1811	1816	0	1	1	2	2	2	3	3	4
.26	1820	1824	1828	1832	1837	1841	1845	1849	1854	1858	0	1	1	2	2	3	3	3	4
.27	1862	1866	1871	1875	1879	1884	1888	1892	1897	1901	0	1	1	2	2	3	3	3	4
.28	1905	1910	1914	1919	1923	1928	1932	1936	1941	1945	0	1	1	2	2	3	3	4	4
.29	1950	1954	1959	1963	1968	1972	1977	1982	1986	1991	0	1	1	2	2	3	3	4	4
.30	1995	2000	2004	2009	2014	2018	2023	2028	2032	2037	0	1	1	2	2	3	3	4	4
.31	2042	2046	2051	2056	2061	2065	2070	2075	2080	2084	0	1	1	2	2	3	3	4	4
.32	2089	2094	2099	2104	2109	2113	2118	2123	2128	2133	0	1	1	2	2	3	3	4	4
.33	2138	2143	2148	2153	2158	2163	2168	2173	2178	2183	0	1	1	2	2	3	3	4	4
.34	2188	2193	2198	2203	2208	2213	2218	2223	2228	2234	1	1	2	2	3	3	4	4	5
.35	2239	2244	2249	2254	2259	2265	2270	2275	2280	2286	1	1	2	2	3	3	4	4	5
.36	2291	2296	2301	2307	2312	2317	2323	2328	2333	2339	1	1	2	2	3	3	4	4	5
.37	2344	2350	2355	2360	2366	2371	2377	2382	2388	2393	1	1	2	2	3	3	4	4	5
.38	2399	2404	2410	2415	2421	2427	2432	2438	2443	2449	1	1	2	2	3	3	4	4	5
.39	2455	2460	2466	2472	2477	2483	2489	2495	2500	2506	1	1	2	2	3	3	4	5	5
.40	2512	2518	2523	2529	2535	2541	2547	2553	2559	2564	1	1	2	2	3	4	4	5	5
.41	2570	2576	2582	2588	2594	2600	2606	2612	2618	2624	1	1	2	2	3	4	4	5	5
.42	2630	2636	2642	2649	2655	2661	2667	2673	2679	2685	1	1	2	2	3	4	4	5	6
.43	2692	2698	2704	2710	2716	2723	2729	2735	2742	2748	1	1	2	3	3	4	4	5	6
.44	2754	2761	2767	2773	2780	2786	2793	2799	2805	2812	1	1	2	3	3	4	4	5	6
.45	2818	2825	2831	2838	2844	2851	2858	2864	2871	2877	1	1	2	3	3	4	5	5	6
.46	2884	2891	2897	2904	2911	2917	2924	2931	2938	2944	1	1	2	3	3	4	5	5	6
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.48	3020	3027	3034	3041	3048	3055	3062	3069	3076	3083	1	1	2	3	4	4	5	6	6
.49	3090	3097	3105	3112	3119	3126	3133	3141	3148	3155	1	1	2	3	4	4	5	6	6
	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9

ANTILOGARITMOS

	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
.50	3162	3170	3177	3184	3192	3199	3206	3214	3221	3228	1	1	2	3	4	4	5	6	7
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.53	3388	3396	3404	3412	3420	3428	3436	3443	3451	3459	1	2	2	3	4	5	6	6	7
.54	3467	3475	3483	3491	3499	3508	3516	3524	3532	3540	1	2	2	3	4	5	6	6	7
.55	3548	3556	3565	3573	3581	3589	3597	3606	3614	3622	1	2	2	3	4	5	6	7	7
.56	3631	3639	3648	3656	3664	3673	3681	3690	3698	3707	1	2	3	3	4	5	6	7	8
.57	3715	3724	3733	3741	3750	3758	3767	3776	3784	3793	1	2	3	3	4	5	6	7	8
.58	3802	3811	3819	3828	3837	3846	3855	3864	3873	3882	1	2	3	4	4	5	6	7	8
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.61	4074	4083	4093	4102	4111	4121	4130	4140	4150	4159	1	2	3	4	5	6	7	8	9
.62	4169	4178	4188	4198	4207	4217	4227	4236	4246	4256	1	2	3	4	5	6	7	8	9
.63	4266	4276	4285	4295	4305	4315	4325	4335	4345	4355	1	2	3	4	5	6	7	8	9
.64	4365	4375	4385	4395	4406	4416	4426	4436	4446	4457	1	2	3	4	5	6	7	8	9
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.66	4571	4581	4592	4603	4613	4624	4634	4645	4656	4667	1	2	3	4	5	6	7	9	10
.67	4677	4688	4699	4710	4721	4732	4742	4753	4764	4775	1	2	3	4	5	7	8	9	10
.68	4786	4797	4808	4819	4831	4842	4853	4864	4875	4887	1	2	3	4	5	7	8	9	10
.69	4898	4909	4920	4932	4943	4955	4966	4977	4989	5000	1	2	3	5	6	7	8	9	10
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.71	5129	5140	5152	5164	5176	5188	5200	5212	5224	5236	1	2	4	5	6	7	8	10	11
.72	5248	5260	5272	5284	5297	5309	5321	5333	5346	5358	1	2	4	5	6	7	9	10	11
.73	5370	5383	5395	5408	5420	5433	5445	5458	5470	5483	1	3	4	5	6	8	9	10	11
.74	5495	5508	5521	5534	5546	5559	5572	5585	5598	5610	1	3	4	5	6	8	9	10	12
.75	5623	5636	5649	5662	5675	5689	5702	5715	5728	5741	1	3	4	5	7	8	9	10	12
.76	5754	5768	5781	5794	5808	5821	5834	5848	5861	5875	1	3	4	5	7	8	9	11	12
.77	5888	5902	5916	5929	5943	5957	5970	5984	5998	6012	1	3	4	5	7	8	10	11	12
.78	6026	6039	6053	6067	6081	6095	6109	6124	6138	6152	1	3	4	6	7	8	10	11	13
.79	6166	6180	6194	6209	6223	6237	6252	6266	6281	6295	1	3	4	6	7	9	10	11	13
.80	6310	6324	6339	6353	6368	6383	6397	6412	6427	6442	1	3	4	6	7	9	10	12	13
.81	6457	6471	6486	6501	6516	6531	6546	6561	6577	6592	2	3	5	6	8	9	11	12	14
.82	6607	6622	6637	6653	6668	6683	6699	6714	6730	6745	2	3	5	6	8	9	11	12	14
.83	6761	6776	6792	6808	6823	6839	6855	6871	6887	6902	2	3	5	6	8	9	11	13	14
.84	6918	6934	6950	6966	6982	6998	7015	7031	7047	7063	2	3	5	6	8	10	11	13	15
.85	7079	7096	7112	7129	7145	7161	7178	7194	7211	7228	2	3	5	7	8	10	12	13	15
.86	7244	7261	7278	7295	7311	7328	7345	7362	7379	7396	2	3	5	7	8	10	12	13	15
.87	7413	7430	7447	7464	7482	7499	7516	7534	7551	7568	2	3	5	7	9	10	12	14	16
.88	7586	7603	7621	7638	7656	7674	7691	7709	7727	7745	2	4	5	7	9	11	12	14	16
.89	7762	7780	7798	7816	7834	7852	7870	7889	7907	7925	2	4	5	7	9	11	13	14	16
.90	7943	7962	7980	7998	8017	8035	8054	8072	8091	8110	2	4	6	7	9	11	13	15	17
.91	8128	8147	8166	8185	8204	8222	8241	8260	8279	8299	2	4	6	8	9	11	13	15	17
.92	8318	8337	8356	8375	8395	8414	8433	8453	8472	8492	2	4	6	8	10	12	14	15	17
.93	8511	8531	8551	8570	8590	8610	8630	8650	8670	8690	2	4	6	8	10	12	14	16	18
.94	8710	8730	8750	8770	8790	8810	8831	8851	8872	8892	2	4	6	8	10	12	14	16	18
.95	8913	8933	8954	8974	8995	9016	9036	9057	9078	9099	2	4	6	8	10	12	15	17	19
.96	9120	9141	9162	9183	9204	9226	9247	9268	9290	9311	2	4	6	8	11	13	15	17	19
.97	9333	9354	9376	9397	9419	9441	9462	9484	9506	9528	2	4	7	9	11	13	15	17	20
.98	9550	9572	9594	9616	9638	9661	9683	9705	9727	9750	2	4	7	9	11	13	16	18	20
.99	9772	9795	9817	9840	9863	9886	9908	9931	9954	9977	2	5	7	9	11	14	16	18	20
	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9