

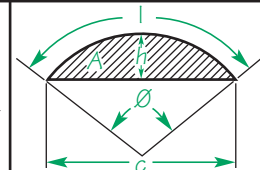
Architectural Drafting Using AutoCAD

Standard Tables



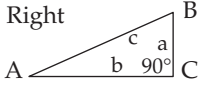
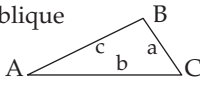
Lengths and Areas of Arc Segments

The following table lists data for the length of an arc (l = radians), height of the segment (h), chord length (c), and the area of the segment (A). The values are for angles between 1° and 180° and are based on an arc with a radius of $1''$. For radii greater than $1''$, multiply the distances values by the radius ($r \times l = l, r \times h = h, r \times c = c$). For the area of radii greater than $1''$, multiply the square of the radius by the area value ($r^2 \times A = A$).




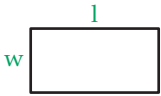
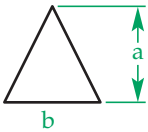
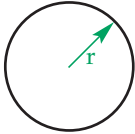
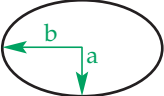
Angle θ	l	h	c	Area (A)	Angle θ	l	h	c	Area (A)	Angle θ	l	h	c	Area (A)
1	0.0175	0.0000	0.0175	0.0000	61	1.0650	0.1384	1.0150	0.0950	121	2.1220	0.5076	1.7410	0.6273
2	0.0349	0.0002	0.0349	0.0000	62	1.0820	0.1428	1.0300	0.0996	122	2.1290	0.5152	1.7490	0.6406
3	0.0524	0.0003	0.0524	0.0000	63	1.1000	0.1474	1.0450	0.1043	123	2.1470	0.5228	1.7580	0.6540
4	0.0698	0.0006	0.0698	0.0000	64	1.1170	0.1520	1.0600	0.1091	124	2.1640	0.5305	1.7660	0.6676
5	0.0873	0.0009	0.0872	0.0000	65	1.1340	0.1566	1.0750	0.1141	125	2.1820	0.5383	1.7740	0.6813
6	0.1047	0.0014	0.1047	0.0001	66	1.1520	0.1613	1.0890	0.1191	126	2.1990	0.5460	1.7820	0.6950
7	0.1222	0.0019	0.1221	0.0002	67	1.1690	0.1661	1.1040	0.1244	127	2.2170	0.5538	1.7900	0.7090
8	0.1396	0.0024	0.1395	0.0002	68	1.1870	0.1710	1.1180	0.1298	128	2.2340	0.5616	1.7980	0.7230
9	0.1571	0.0031	0.1569	0.0003	69	1.2040	0.1759	1.1330	0.1354	129	2.2510	0.5695	1.8050	0.7372
10	0.1745	0.0038	0.1743	0.0004	70	1.2220	0.1808	1.1470	0.1410	130	2.2690	0.5774	1.8130	0.7514
11	0.1919	0.0046	0.1917	0.0006	71	1.2390	0.1859	1.1610	0.1468	131	2.2860	0.5853	1.8200	0.7658
12	0.2094	0.0055	0.2091	0.0008	72	1.2570	0.1910	1.1760	0.1528	132	2.3040	0.5933	1.8270	0.7803
13	0.2269	0.0064	0.2264	0.0009	73	1.2740	0.1961	1.1900	0.1589	133	2.3210	0.6013	1.8340	0.7950
14	0.2444	0.0075	0.2437	0.0012	74	1.2920	0.2014	1.2040	0.1651	134	2.3390	0.6093	1.8410	0.8097
15	0.2618	0.0086	0.2611	0.0015	75	1.3090	0.2066	1.2180	0.1715	135	2.3560	0.6173	1.8480	0.8245
16	0.2793	0.0097	0.2784	0.0018	76	1.3260	0.2120	1.2310	0.1781	136	2.3740	0.6254	1.8540	0.8395
17	0.2967	0.0109	0.2956	0.0022	77	1.3440	0.2174	1.2450	0.1848	137	2.3910	0.6335	1.8610	0.8546
18	0.3142	0.0123	0.3129	0.0026	78	1.3610	0.2229	1.2590	0.1916	138	2.4090	0.6416	1.8670	0.8697
19	0.3316	0.0137	0.3301	0.0030	79	1.3790	0.2284	1.2720	0.1986	139	2.4260	0.6498	1.8730	0.8850
20	0.3490	0.0152	0.3473	0.0035	80	1.3960	0.2340	1.2860	0.2057	140	2.4430	0.6580	1.8790	0.9003
21	0.3665	0.0167	0.3645	0.0040	81	1.4140	0.2396	1.2990	0.2130	141	2.4610	0.6662	1.8850	0.9158
22	0.3839	0.0184	0.3816	0.0047	82	1.4310	0.2453	1.3120	0.2205	142	2.4780	0.6744	1.8910	0.9314
23	0.4014	0.0200	0.3987	0.0054	83	1.4490	0.2510	1.3250	0.2280	143	2.4960	0.6827	1.8970	0.9470
24	0.4189	0.0219	0.4158	0.0061	84	1.4660	0.2569	1.3380	0.2358	144	2.5130	0.6910	1.9020	0.9627
25	0.4363	0.0237	0.4329	0.0069	85	1.4840	0.2627	1.3510	0.2437	145	2.5310	0.6993	1.9070	0.9786
26	0.4538	0.0256	0.4499	0.0077	86	1.5010	0.2686	1.3640	0.2517	146	2.5480	0.7076	1.9130	0.9945
27	0.4712	0.0276	0.4669	0.0086	87	1.5180	0.2746	1.3770	0.2599	147	2.5660	0.7160	1.9180	1.0105
28	0.4887	0.0297	0.4838	0.0096	88	1.5360	0.2807	1.3890	0.2683	148	2.5830	0.7244	1.9230	1.0266
29	0.5061	0.0319	0.5008	0.0107	89	1.5530	0.2867	1.4020	0.2768	149	2.6010	0.7328	1.9270	1.0428
30	0.5236	0.0340	0.5176	0.0118	90	1.5710	0.2929	1.4140	0.2854	150	2.6180	0.7412	1.9320	1.0590
31	0.5411	0.0364	0.5345	0.0130	91	1.5880	0.2991	1.4270	0.2942	151	2.6350	0.7496	1.9360	1.0753
32	0.5585	0.0387	0.5513	0.0143	92	1.6060	0.3053	1.4390	0.3032	152	2.6530	0.7581	1.9410	1.0917
33	0.5759	0.0412	0.5680	0.0157	93	1.6230	0.3116	1.4510	0.3123	153	2.6700	0.7666	1.9450	1.1082
34	0.5934	0.0437	0.5847	0.0171	94	1.6410	0.3180	1.4630	0.3215	154	2.6880	0.7750	1.9490	1.1247
35	0.6109	0.0463	0.6014	0.0186	95	1.6580	0.3244	1.4750	0.3309	155	2.7050	0.7936	1.9530	1.1413
36	0.6283	0.0489	0.6180	0.0203	96	1.6760	0.3309	1.4860	0.3405	156	2.7230	0.7921	1.9560	1.1580
37	0.6458	0.0517	0.6346	0.0219	97	1.6930	0.3374	1.4980	0.3502	157	2.7400	0.8006	1.9600	1.1747
38	0.6632	0.0545	0.6511	0.0238	98	1.7100	0.3439	1.5090	0.3601	158	2.7580	0.8092	1.9630	1.1915
39	0.6807	0.0574	0.6676	0.0257	99	1.7280	0.3506	1.5210	0.3701	159	2.7750	0.8178	1.9670	1.2084
40	0.6981	0.0603	0.6840	0.0277	100	1.7450	0.3572	1.5320	0.3803	160	2.7930	0.8264	1.9700	1.2253
41	0.7156	0.0633	0.7004	0.0298	101	1.7630	0.3639	1.5430	0.3906	161	2.8100	0.8350	1.9730	1.2422
42	0.7330	0.0664	0.7167	0.0319	102	1.7800	0.3707	1.5540	0.4010	162	2.8270	0.8436	1.9750	1.2592
43	0.7505	0.0696	0.7330	0.0343	103	1.7980	0.3775	1.5650	0.4117	163	2.8450	0.8522	1.9780	1.2763
44	0.7679	0.0728	0.7492	0.0366	104	1.8150	0.3843	1.5760	0.4224	164	2.8620	0.8608	1.9810	1.2934
45	0.7854	0.0761	0.7653	0.0391	105	1.8330	0.3912	1.5870	0.4333	165	2.8800	0.8695	1.9830	1.3105
46	0.8030	0.0795	0.7810	0.0418	106	1.8500	0.3982	1.5970	0.4444	166	2.8970	0.8781	1.9850	1.3277
47	0.8200	0.0829	0.7970	0.0445	107	1.8680	0.4052	1.6080	0.4556	167	2.9150	0.8868	1.9870	1.3449
48	0.8380	0.0865	0.8130	0.0473	108	1.8850	0.4122	1.6180	0.4669	168	2.9320	0.8955	1.9890	1.3621
49	0.8550	0.0900	0.8290	0.0502	109	1.9020	0.4193	1.6280	0.4784	169	2.9500	0.9042	1.9910	1.3794
50	0.8730	0.0937	0.8450	0.0533	110	1.9200	0.4264	1.6380	0.4901	170	2.9670	0.9128	1.9920	1.3967
51	0.8900	0.0974	0.8610	0.0565	111	1.9370	0.4336	1.6480	0.5019	171	2.9850	0.9215	1.9940	1.4140
52	0.9080	0.1012	0.8770	0.0598	112	1.9550	0.4408	1.6580	0.5138	172	3.0020	0.9302	1.9950	1.4314
53	0.9250	0.1051	0.8920	0.0632	113	1.9720	0.4481	1.6680	0.5259	173	3.0190	0.9390	1.9960	1.4488
54	0.9420	0.1090	0.9080	0.0667	114	1.9900	0.4554	1.6770	0.5381	174	3.0370	0.9477	1.9970	1.4662
55	0.9600	0.1130	0.9230	0.0703	115	2.0070	0.4627	1.6870	0.5504	175	3.0540	0.9564	1.9980	1.4836
56	0.9770	0.1171	0.9390	0.0741	116	2.0250	0.4701	1.6960	0.5629	176	3.0720	0.9651	1.9990	1.5010
57	0.9950	0.1212	0.9540	0.0780	117	2.0420	0.4775	1.7050	0.5755	177	3.0890	0.9738	1.9990	1.5184
58	1.0120	0.1254	0.9700	0.0821	118	2.0590	0.4850	1.7140	0.5883	178	3.1070	0.9825	2.0000	1.5359
59	1.0300	0.1296	0.9850	0.0863	119	2.0770	0.4925	1.7230	0.6012	179	3.1240	0.9913	2.0000	1.5533
60	1.0470	0.1340	1.0000	0.0956	120	2.0940	0.5000	1.7320	0.6142	180	3.1420	1.0000	2.0000	1.5708

Solutions to Triangles

Solutions to Triangles			
$A + B + C = 180^\circ$ $S = \frac{a+b+c}{2}$		Right 	Oblique 
Have	Want	Formulas for Right	Formulas for Oblique
abc	A	$\tan A = a/b$	$1/2A = \sqrt{(s-b)(s-c)/bc}$
	B	$90^\circ - A$ or $\cos B = a/c$	$\sin 1/2B = \sqrt{(s-a)(s-c)/a \times c}$
	C	90°	$\sin 1/2C = \sqrt{(s-a)(s-b)/a \times b}$
	Area	$a \times b/2$	$\sqrt{s \times (s-a)(s-b)(s-c)}$
aAC	B	$90^\circ - A$	$180^\circ - (A + C)$
	b	$a \cot A$	$a \sin B/\sin A$
	c	$a/\sin A$	$a \sin C/\sin A$
	Area	$(a^2 \cot A)/2$	$a^2 \sin B \sin C/2 \sin A$
acC	A	$\sin A = a/c$	$\sin A = a \sin C/c$
	B	$90^\circ - A$ or $\cos B = a/c$	$180^\circ - (A + C)$
	b	$\sqrt{c^2 - a^2}$	$c \sin B/\sin C$
	Area	$1/2a \sqrt{c^2 - a^2}$	$1/2 ac \sin B$
abC	A	$\tan A = a/b$	$\tan A = a \sin C/b - a \cos C$
	B	$90^\circ - A$ or $\tan B = b/a$	$180^\circ - (A + C)$
	c	$\sqrt{a^2 + b^2}$	$\sqrt{a^2 + b^2 - 2ab \cos C}$
	Area	$a \times b/2$	$1/2ab \sin C$

Fraction, Decimal, and Metric Equivalents

Imperial	Metric	
Inch	Decimal	Millimeter
1/32"	.03125	.7938 mm
1/16"	.0625	1.5875 mm
3/32"	.09375	2.3813 mm
1/8"	.125	3.175 mm
5/32"	1.5625	3.9688 mm
3/16"	.1875	4.7625 mm
7/32"	.21875	5.5563 mm
1/4"	.250	6.35 mm
9/32"	.28125	7.1438 mm
5/16"	.3125	7.9375 mm
11/32"	.34375	8.7313 mm
3/8"	.375	9.525 mm
13/32"	.40625	10.3188 mm
7/16"	.4375	11.1125 mm
15/32"	.46875	11.9063 mm
1/2"	.500	12.70 mm
17/32"	.53125	13.4938 mm
9/16"	.5625	14.2875 mm
19/32"	.59375	15.0813 mm
5/8"	.625	15.875 mm
21/32"	.65625	16.6688 mm
11/16"	.6875	17.4625 mm
23/32"	.71875	18.2563 mm
3/4"	.750	19.05 mm
25/32"	.78125	19.8438 mm
13/16"	.8125	20.6375 mm
27/32"	.84375	21.4313 mm
7/8"	.875	22.225 mm
29/32"	.90625	23.0188 mm
15/16"	.9375	23.8125 mm
31/32"	.96875	24.6063 mm
1"	1.000	25.4000 mm

Area Formulas		
	Square	Area = a^2
	Rectangle	Area = $l \times w$
	Triangle	Area = $\frac{1}{2}(a \times b)$
	Circle	Area = πr^2 Circumference = $2\pi r$
	Ellipse	Area = πab

Roof Pitch Angles

