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U. S. DEPARTMENT OF COMMERCE

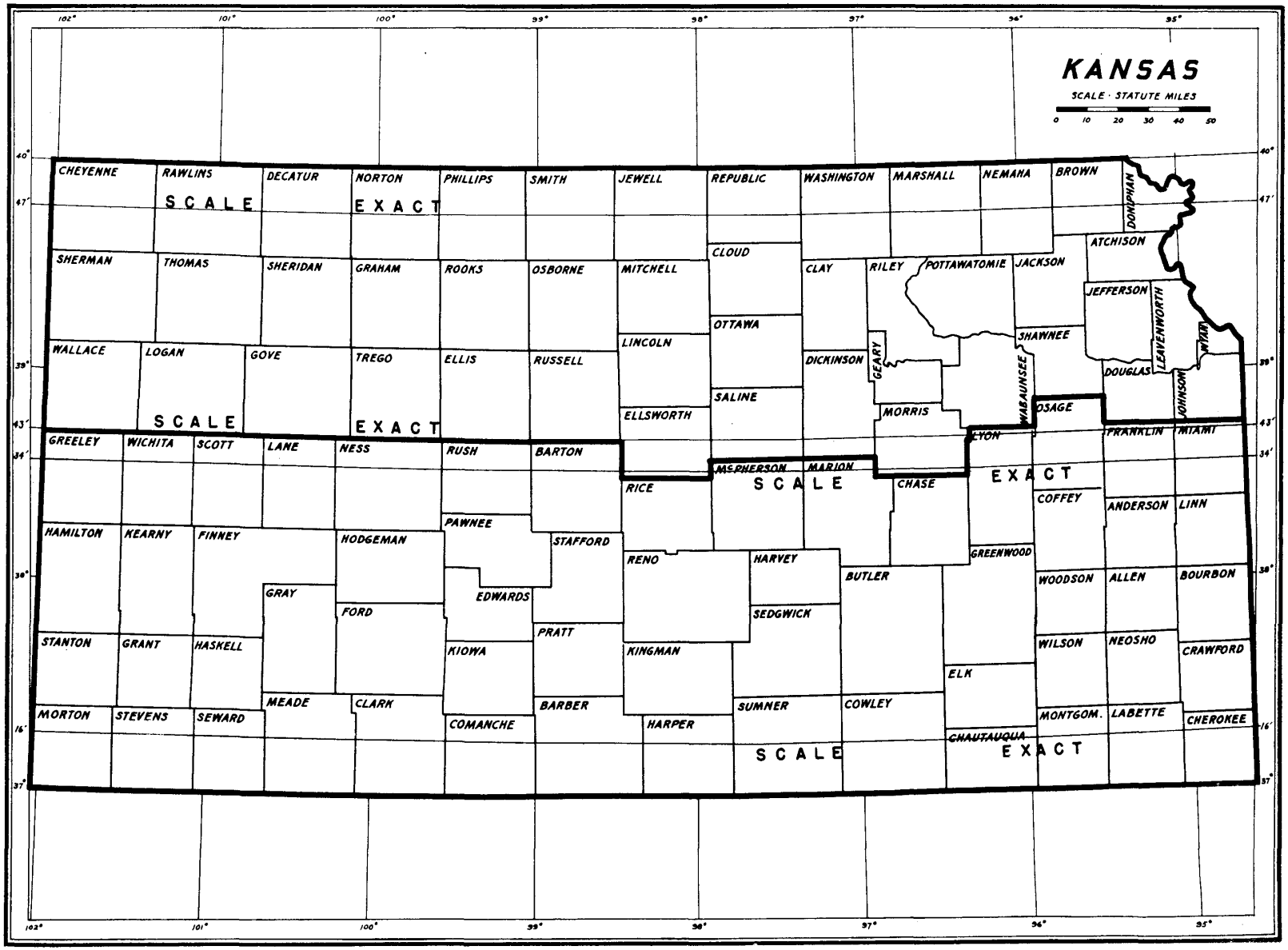
COAST AND GEODETIC SURVEY

PLANE COORDINATE PROJECTION TABLES

KANSAS

(LAMBERT)

SPECIAL PUBLICATION NO. 285



STATE PLANE-COORDINATE ZONES

Foreword

The plane coordinate system used in this State is based on the Lambert conformal conic projection with two standard parallels for each zone. The tables in this publication are to be used for the conversion of geographic positions to plane coordinates or plane coordinates to geographic positions. The constants of the projection are listed with the tables.

The methods of computation have been designed for machine calculation, using tables of natural trigonometric functions. A table of these functions has been published by the Coast and Geodetic Survey to ten decimal places with ten-second intervals for 0° to 6° in Special Publication No. 246 and is sold for a nominal sum by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.

The formulas and sample computations which follow show the general methods for computing either type of coordinates.

Plane Coordinates from Geographic Positions

$$x = R \sin \theta + C$$

$$y = R_b - R \cos \theta$$

Grid azimuth = geodetic azimuth - θ + second term

where

R is the radius for the latitude of the station,

R_b is a constant for a zone,

θ is the mapping angle for the longitude of the station,

and

C is the value of x assigned to the Central Meridian for a zone.

The second term for the reduction of geodetic to grid azimuths may be neglected for most work. However, for lines five miles or more in length, if the same degree of accuracy is desired as is obtained by geographic computations, this term should be evaluated and used.

$$\text{Second term} = \frac{x_2 - x_1}{2\rho_0^{\,2} \sin 1''} \left(y_1 - y_0 + \frac{y_2 - y_1}{3} \right)$$

Geographic Positions from Plane Coordinates

The formulas show the method of computing R and θ from which the latitude and longitude may be obtained.

$$x' = x - C$$

$$\tan \theta = x' \div (R_b - y)$$

$$R = (R_b - y) \div \cos \theta$$

$$\Delta\lambda = \theta \div \ell$$

$$\lambda = \text{Central Meridian} - \Delta\lambda$$

where

R, R_b, θ and C are the same as previously defined

and ℓ is a constant for a zone.

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Form 795 d

PLANE COORDINATES ON LAMBERT PROJECTION

(Condensed form for calculating-machine computation)

$X = R \sin\theta + C$
$C =$ 2,000,000.00

$Y = R_b - R\cos\theta$
$R_b =$ 25,979,068.57

State-Zone Kansas - North
Grid Az. = Geod. Az. $- \theta$

Station	Latitude / Longitude	R / θ	sin θ / cos θ	X / Y
1 Robbins, 1889, r.1935	38 58 52.096	25,743,138.15	+0.01326 78253	2,341,555.46
	96 47 54.567	+0 45 36.7657	0.99991 19786	238,196.37
	Grid azimuth to azimuth mark			229° 36' 42"
2 Cooper, 1898	39 58 41.957	25,379,925.63	-0.00651 51579	1,834,645.78
	98 35 23954	-0 22 238573	0.99997 87762	599,681.60
	Grid azimuth to azimuth mark			256° 58' 07"
3				
	Grid azimuth to azimuth mark			° ' "
4				
	Grid azimuth to azimuth mark			° ' "
5				
	Grid azimuth to azimuth mark			° ' "
6				
	Grid azimuth to azimuth mark			° ' "
7				
	Grid azimuth to azimuth mark			° ' "
8				
	Grid azimuth to azimuth mark			° ' "
9				
	Grid azimuth to azimuth mark			° ' "
10				
	Grid azimuth to azimuth mark			° ' "
11				
	Grid azimuth to azimuth mark			° ' "
12				
	Grid azimuth to azimuth mark			° ' "

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Form 742 b

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GEODETIC POSITIONS FROM LAMBERT COORDINATES

(CALCULATING MACHINE COMPUTATION)

STATE – ZONE Kansas - North ℓ = 0.63271 48646

Station Robbins, 1889, r. 1935

C	– 2,000,000.00	R_b	25,979,068.57
X	2,341,555.46	Y	– 238,196.37
$X' = X - C$	+ 341,555.46	$R_b - Y$	25,740,872.20
$\tan\theta = X' \div (R_b - Y)$	+0.01326 89933	θ	+ 2736.7657"
θ	+ 0° 45' 36.7657"	$\Delta\lambda = \theta \div \ell$	+ 4325.433"
$\cos\theta$	0.99991 19786	$\Delta\lambda$	+ 1° 12' 05.433"
$R = (R_b - Y) \div \cos\theta$	25,743,138.15	Central Meridian	98° 00' 00.000"
ϕ	38° 58' 52.096"	λ = C.M. – $\Delta\lambda$	96° 47' 54.567"

Station Cooper, 1898

C	– 2,000,000.00	R_b	25,979,068.57
X	1,834,645.78	Y	– 599,681.60
$X' = X - C$	– 165,354.22	$R_b - Y$	25,379,386.97
$\tan\theta = X' \div (R_b - Y)$	–0.00651 52961	θ	–1343.8573"
θ	– 0° 22' 23.8573"	$\Delta\lambda = \theta \div \ell$	–2123.954"
$\cos\theta$	0.99997 87762	$\Delta\lambda$	–0° 35' 23.954"
$R = (R_b - Y) \div \cos\theta$	25,379,925.63	Central Meridian	98° 00' 00.000"
ϕ	39° 58' 41.957"	λ = C.M. – $\Delta\lambda$	98° 35' 23.954"

Station

C	–	R_b	
X		Y	–
$X' = X - C$		$R_b - Y$	
$\tan\theta = X' \div (R_b - Y)$		θ	"
θ	° ' "	$\Delta\lambda = \theta \div \ell$	"
$\cos\theta$		$\Delta\lambda$	° ' "
$R = (R_b - Y) \div \cos\theta$		Central Meridian	° ' "
ϕ	° ' "	λ = C.M. – $\Delta\lambda$	° ' "

Station

C	–	R_b	
X		Y	–
$X' = X - C$		$R_b - Y$	
$\tan\theta = X' \div (R_b - Y)$		θ	"
θ	° ' "	$\Delta\lambda = \theta \div \ell$	"
$\cos\theta$		$\Delta\lambda$	° ' "
$R = (R_b - Y) \div \cos\theta$		Central Meridian	° ' "
ϕ	° ' "	λ = C.M. – $\Delta\lambda$	° ' "

Constants for Kansas

Constant	North zone	South zone
C	2,000,000.00 ft.	2,000,000.00 ft.
Central Meridian	98° 00' 00".000	98° 30' 00".000
R_b	25,979,068.57 ft.	27,351,521.50 ft.
y_o	334,109.46 ft.	455,497.02 ft.
ℓ	0.63271 48646	0.61452 81068
$\frac{1}{2\rho_o^2 \sin 1''}$	2.358×10^{-10}	2.359×10^{-10}
$\log \frac{1}{2\rho_o^2 \sin 1''}$	0.372 6226 - 10	0.372 7562 - 10
$\log \ell$	9.80120 80376 - 10	9.78854 17510 - 10
log K	7.61279 43388	7.61971 15163

Lambert Projection for Kansas (North)

Table I

Lat.	R (feet)	Y' y value on central meridian (feet)	Tabular difference for 1 sec. of lat. (feet)	Scale in units of 7 th place of logs	Scale expressed as a ratio
38° 20'	25,979,068.57	0	101.16783	+364.5	1.0000839
21	25,972,998.50	6,070.07	101.16767	+344.7	1.0000794
22	25,966,928.44	12,140.13	101.16750	+325.2	1.0000749
23	25,960,858.39	18,210.18	101.16733	+306.1	1.0000705
24	25,954,788.35	24,280.22	101.16733	+287.4	1.0000662
25	25,948,718.31	30,350.26	101.16717	+269.0	1.0000619
38° 26'	25,942,648.28	36,420.29	101.16700	+251.0	1.0000578
27	25,936,578.26	42,490.31	101.16683	+233.3	1.0000537
28	25,930,508.25	48,560.32	101.16683	+216.0	1.0000497
29	25,924,438.24	54,630.33	101.16667	+199.1	1.0000458
30	25,918,368.24	60,700.33	101.16650	+182.5	1.0000420
38° 31'	25,912,298.25	66,770.32	101.16650	+166.3	1.0000383
32	25,906,228.26	72,840.31	101.16650	+150.5	1.0000347
33	25,900,158.27	78,910.30	101.16633	+135.0	1.0000311
34	25,894,088.29	84,980.28	101.16633	+119.8	1.0000276
35	25,888,018.31	91.050.26	101.16617	+105.1	1.0000242
38° 36'	25,881,948.34	97,120.23	101.16617	+90.7	1.0000209
37	25,875,878.37	103,190.20	101.16617	+76.6	1.0000176
38	25,869,808.40	109,260.17	101.16617	+62.9	1.0000145
39	25,863,738.43	115,330.14	101.16617	+49.6	1.0000114
40	25,857,668.46	121,400.11	101.16617	+36.7	1.0000084
38° 41'	25,851,598.49	127,470.08	101.16617	+24.1	1.0000055
42	25,845,528.52	133,540.05	101.16617	+11.9	1.0000027
43	25,839,458.55	139,610.02	101.16617	0.0	1.0000000
44	25,833,388.58	145,679.99	101.16617	-11.5	0.9999974
45	25,827,318.61	151,749.96	101.16633	-22.6	0.9999948
38° 46'	25,821,248.63	157,819.94	101.16633	-33.4	0.9999923
47	25,815,178.65	163,889.92	101.16633	-43.8	0.9999899
48	25,809,108.67	169,959.90	101.16633	-53.8	0.9999876
49	25,803.038.69	176,029.88	101.16650	-63.5	0.9999854
50	25,796,968.70	182,099.87	101.16667	-72.8	0.9999832
38° 51'	25,790,898.70	188,169.87	101.16667	-81.8	0.9999812
52	25,784,828.70	194,239.87	101.16667	-90.4	0.9999792
53	25,778,758.70	200,309.87	101.16683	-98.6	0.9999773
54	25,772,688.69	206,379.88	101.16700	-106.5	0.9999755
55	25,766,618.67	212,449.90	101.16717	-114.0	0.9999738

Lambert Projection for Kansas (North)

Table I (Cont'd)

Lat.	R (feet)	Y' y value on central meridian (feet)	Tabular difference for 1 sec. of lat. (feet)	Scale in units of 7th place of logs	Scale expressed as a ratio
38° 56'	25,760,548.64	218,519.93	101.16717	-121.1	0.9999721
57	25,754,478.61	224,589.96	101.16733	-127.9	0.9999705
58	25,748,408.57	230,660.00	101.16750	-134.3	0.9999691
59	25,742,338.52	236,730.05	101.16767	-140.3	0.9999677
39° 00'	25,736,268.46	242,800.11	101.16783	-146.0	0.9999664
39° 01'	25,730,198.39	248,870.18	101.16800	-151.3	0.9999652
02	25,724,128.31	254,940.26	101.16817	-156.3	0.9999640
03	25,718,058.22	261,010.35	101.16850	-160.9	0.9999630
04	25,711,988.11	267,080.46	101.16850	-165.1	0.9999620
05	25,705,918.00	273,150.57	101.16883	-168.9	0.9999611
39° 06'	25,699,847.87	279,220.70	101.16900	-172.4	0.9999603
07	25,693,777.73	285,290.84	101.16917	-175.5	0.9999596
08	25,687,707.58	291,360.99	101.16950	-178.3	0.9999589
09	25,681,637.41	297,431.16	101.16967	-180.7	0.9999584
10	25,675,567.23	303,501.34	101.17000	-182.7	0.9999579
39° 11'	25,669,497.03	309,571.54	101.17017	-184.4	0.9999575
12	25,663,426.82	315,641.75	101.17050	-185.7	0.9999572
13	25,657,356.59	321,711.98	101.17067	-186.6	0.9999570
14	25,651,286.35	327,782.22	101.17100	-187.2	0.9999569
15	25,645,216.09	333,852.48	101.17133	-187.4	0.9999568
39° 16'	25,639,145.81	339,922.76	101.17167	-187.2	0.9999569
17	25,633,075.51	345,993.06	101.17200	-186.7	0.9999570
18	25,627,005.19	352,063.38	101.17233	-185.8	0.9999572
19	25,620,934.85	358,133.72	101.17250	-184.5	0.9999575
20	25,614,864.50	364,204.07	101.17283	-182.9	0.9999579
39° 21'	25,608,794.13	370,274.44	101.17333	-180.9	0.9999583
22	25,602,723.73	376,344.84	101.17367	-178.5	0.9999589
23	25,596,653.31	382,415.26	101.17400	-175.8	0.9999595
24	25,590,582.87	388,485.70	101.17433	-172.7	0.9999602
25	25,584,512.41	394,556.16	101.17467	-169.2	0.9999610
39° 26'	25,578,441.93	400,626.64	101.17517	-165.4	0.9999619
27	25,572,371.42	406,697.15	101.17550	-161.2	0.9999629
28	25,566,300.89	412,767.68	101.17600	-156.6	0.9999639
29	25,560,230.33	418,838.24	101.17633	-151.7	0.9999651
30	25,554,159.75	424,908.82	101.17667	-146.4	0.9999663

Lambert Projection for Kansas (North)

Table I (Cont'd)

Lat.	R (feet)	Y' y value on central meridian (feet)	Tabular difference for 1 sec. of lat. (feet)	Scale in units of 7th place of logs	Scale expressed as a ratio
39° 31'	25,548,089.15	430,979.42	101.17717	-140.7	0.9999676
32	25,542,018.52	437,050.05	101.17767	-134.7	0.9999690
33	25,535,947.86	443,120.71	101.17817	-128.3	0.9999705
34	25,529,877.17	449,191.40	101.17850	-121.5	0.9999720
35	25,523,806.46	455,262.11	101.17900	-114.4	0.9999737
39° 36'	25,517,735.72	461,332.85	101.17950	-106.9	0.9999754
37	25,511,664.95	467,403.62	101.17983	-99.0	0.9999772
38	25,505,594.16	473,474.41	101.18050	-90.8	0.9999791
39	25,499,523.33	479,545.24	101.18100	-82.1	0.9999811
40	25,493,452.47	485,616.10	101.18133	-73.2	0.9999831
39° 41'	25,487,381.59	491,686.98	101.18200	-63.8	0.9999853
42	25,481,310.67	497,757.90	101.18250	-54.1	0.9999875
43	25,475,239.72	503,828.85	101.18300	-44.0	0.9999899
44	25,469,168.74	509,899.83	101.18367	-33.6	0.9999923
45	25,463,097.72	515,970.85	101.18400	-22.8	0.9999948
39° 46'	25,457,026.68	522,041.89	101.18467	-11.6	0.9999973
47	25,450,955.60	528,112.97	101.18533	0.0	1.0000000
48	25,444,884.48	534,184.09	101.18583	+11.9	1.0000027
49	25,438,813.33	540,255.24	101.18633	+24.2	1.0000056
50	25,432,742.15	546,326.42	101.18700	+36.9	1.0000085
39° 51'	25,426,670.93	552,397.64	101.18767	+49.9	1.0000115
52	25,420,599.67	558,468.90	101.18817	+63.3	1.0000146
53	25,414,528.38	564,540.19	101.18883	+77.1	1.0000178
54	25,408,457.05	570,611.52	101.18950	+91.2	1.0000210
55	25,402,385.68	576,682.89	101.19017	+105.7	1.0000243
39° 56'	25,396,314.27	582,754.30	101.19067	+120.6	1.0000278
57	25,390,242.83	588,825.74	101.19150	+135.9	1.0000313
58	25,384,171.34	594,897.23	101.19200	+151.5	1.0000349
59	25,378,099.82	600,968.75	101.19267	+167.5	1.0000386
40° 00'	25,372,028.26	607,040.31	101.19350	+183.9	1.0000423
40° 01'	25,365,956.65	613,111.92	101.19417	+200.6	1.0000462
02	25,359,885.00	619,183.57	101.19483	+217.7	1.0000501
03	25,353,813.31	625,255.26	101.19550	+235.2	1.0000542
04	25,347,741.58	631,326.99	101.19617	+253.0	1.0000583
05	25,341,669.81	637,398.76	101.19700	+271.2	1.0000624

Lambert Projection for Kansas (North)

Table I (Cont'd)

Lat.	R (feet)	Y' y value on central meridian (feet)	Tabular difference for 1 sec. of lat. (feet)	Scale in units of 7th place of logs	Scale expressed as a ratio
40° 06'	25,335,597.99	643,470.58	101.19767	+289.8	1.0000667
07	25,329,526.13	649,542.44	101.19833	+308.7	1.0000711
08	25,323,454.23	655,614.34	101.19917	+328.1	1.0000755
09	25,317,382.28	661,686.29	101.20000	+347.7	1.0000801
10	25,311,310.28	667,758.29	101.20067	+367.8	1.0000847
40° 11'	25,305,238.24	673,830.33	101.20150	+388.3	1.0000894
12	25,299,166.15	679,902.42	101.20233	+409.1	1.0000942
13	25,293,094.01	685,974.56	101.20300	+430.2	1.0000991
14	25,287,021.83	692,046.74	101.20383	+451.8	1.0001040
15	25,280,949.60	698,118.97	101.20467	+473.7	1.0001091
40° 16'	25,274,877.32	704,191.25	101.20550	+496.0	1.0001142
17	25,268,804.99	710,263.58	101.20633	+518.7	1.0001194
18	25,262,732.61	716,335.96	101.20717	+541.7	1.0001247
19	25,256,660.18	722,408.39	101.20800	+565.1	1.0001301
20	25,250,587.70	728,480.87		+588.9	1.0001356

Lambert Projection for Kansas (North)

Table II

1" of Long. = 0".63271486 of θ

Long.	θ	Long.	θ	Long.	θ
94° 00'	+2° 31' 51".0941				
01	+2 31 13.1312	94° 36'	+2° 09' 04".4299	95° 11'	+1° 46' 55".7287
02	+2 30 35.1683	37	+2 08 26.4671	12	+1 46 17.7658
03	+2 29 57.2054	38	+2 07 48.5042	13	+1 45 39.8029
04	+2 29 19.2425	39	+2 07 10.5413	14	+1 45 01.8401
05	+2 28 41.2796	40	+2 06 32.5784	15	+1 44 23.8772
94° 06'	+2 28 03.3167	94° 41'	+2 05 54.6155	95° 16'	+1 43 45.9143
07	+2 27 25.3538	42	+2 05 16.6526	17	+1 43 07.9514
08	+2 26 47.3909	43	+2 04 38.6897	18	+1 42 29.9885
09	+2 26 09.4280	44	+2 04 00.7268	19	+1 41 52.0256
10	+2 25 31.4651	45	+2 03 22.7639	20	+1 41 14.0627
94° 11'	+2 24 53.5022	94° 46'	+2 02 44.8010	95° 21'	+1 40 36.0998
12	+2 24 15.5393	47	+2 02 06.8381	22	+1 39 58.1369
13	+2 23 37.5765	48	+2 01 28.8752	23	+1 39 20.1740
14	+2 22 59.6136	49	+2 00 50.9123	24	+1 38 42.2111
15	+2 22 21.6507	50	+2 00 12.9495	25	+1 38 04.2482
94° 16'	+2 21 43.6878	94° 51'	+1 59 34.9866	95° 26'	+1 37 26.2853
17	+2 21 05.7249	52	+1 58 57.0237	27	+1 36 48.3225
18	+2 20 27.7620	53	+1 58 19.0608	28	+1 36 10.3596
19	+2 19 49.7991	54	+1 57 41.0979	29	+1 35 32.3967
20	+2 19 11.8362	55	+1 57 03.1350	30	+1 34 54.4338
94° 21'	+2 18 33.8733	94° 56'	+1 56 25.1721	95° 31'	+1 34 16.4709
22	+2 17 55.9104	57	+1 55 47.2092	32	+1 33 38.5080
23	+2 17 17.9475	58	+1 55 09.2463	33	+1 33 00.5451
24	+2 16 39.9846	59	+1 54 31.2834	34	+1 32 22.5822
25	+2 16 02.0218	95° 00'	+1 53 53.3205	35	+1 31 44.6193
94° 26'	+2 15 24.0589	95° 01'	+1 53 15.3576	95° 36'	+1 31 06.6564
27	+2 14 46.0960	02	+1 52 37.3948	37	+1 30 28.6935
28	+2 14 08.1331	03	+1 51 59.4319	38	+1 29 50.7306
29	+2 13 30.1702	04	+1 51 21.4690	39	+1 29 12.7678
30	+2 12 52.2073	05	+1 50 43.5061	40	+1 28 34.8049
94° 31'	+2 12 14.2444	95° 06'	+1 50 05.5432	95° 41'	+1 27 56.8420
32	+2 11 36.2815	07	+1 49 27.5803	42	+1 27 18.8791
33	+2 10 58.3186	08	+1 48 49.6174	43	+1 26 40.9162
34	+2 10 20.3557	09	+1 48 11.6545	44	+1 26 02.9533
35	+2 09 42.3928	10	+1 47 33.6916	45	+1 25 24.9904

Lambert Projection for Kansas (North)

Table II (Cont'd)

1" of Long. = 0".63271486 of θ

Long.	θ	Long.	θ	Long.	θ
95° 46'	+1° 24' 47".0275	96° 21'	+1° 02' 38".3263	96° 56'	+0° 40' 29".6251
47	+1 24 09.0646	22	+1 02 00.3634	57	+0 39 51.6622
48	+1 23 31.1017	23	+1 01 22.4005	58	+0 39 13.6993
49	+1 22 53.1388	24	+1 00 44.4376	59	+0 38 35.7364
50	+1 22 15.1759	25	+1 00 06.4747	97° 00'	+0 37 57.7735
95° 51'	+1 21 37.2131	96° 26'	+0 59 28.5118	97° 01'	+0 37 19.8106
52	+1 20 59.2502	27	+0 58 50.5489	02	+0 36 41.8477
53	+1 20 21.2873	28	+0 58 12.5861	03	+0 36 03.8848
54	+1 19 43.3244	29	+0 57 34.6232	04	+0 35 25.9219
55	+1 19 05.3615	30	+0 56 56.6603	05	+0 34 47.9591
95° 56'	+1 18 27.3986	96° 31'	+0 56 18.6974	97° 06'	+0 34 09.9962
57	+1 17 49.4357	32	+0 55 40.7345	07	+0 33 32.0333
58	+1 17 11.4728	33	+0 55 02.7716	08	+0 32 54.0704
59	+1 16 33.5099	34	+0 54 24.8087	09	+0 32 16.1075
96° 00'	+1 15 55.5470	35	+0 53 46.8458	10	+0 31 38.1446
96° 01'	+1 15 17.5841	96° 36'	+0 53 08.8829	97° 11'	+0 31 00.1817
02	+1 14 39.6212	37	+0 52 30.9200	12	+0 30 22.2188
03	+1 14 01.6583	38	+0 51 52.9571	13	+0 29 44.2559
04	+1 13 23.6955	39	+0 51 14.9942	14	+0 29 06.2930
05	+1 12 45.7326	40	+0 50 37.0314	15	+0 28 28.3301
96° 06'	+1 12 07.7697	96° 41'	+0 49 59.0685	97° 16'	+0 27 50.3672
07	+1 11 29.8068	42	+0 49 21.1056	17	+0 27 12.4044
08	+1 10 51.8439	43	+0 48 43.1427	18	+0 26 34.4415
09	+1 10 13.8810	44	+0 48 05.1798	19	+0 25 56.4786
10	+1 09 35.9181	45	+0 47 27.2169	20	+0 25 18.5157
96° 11'	+1 08 57.9552	96° 46'	+0 46 49.2540	97° 21'	+0 24 40.5528
12	+1 08 19.9923	47	+0 46 11.2911	22	+0 24 02.5899
13	+1 07 42.0294	48	+0 45 33.3282	23	+0 23 24.6270
14	+1 07 04.0665	49	+0 44 55.3653	24	+0 22 46.6641
15	+1 06 26.1036	50	+0 44 17.4024	25	+0 22 08.7012
96° 16'	+1 05 48.1408	96° 51'	+0 43 39.4395	97° 26'	+0 21 30.7383
17	+1 05 10.1779	52	+0 43 01.4766	27	+0 20 52.7754
18	+1 04 32.2150	53	+0 42 23.5138	28	+0 20 14.8125
19	+1 03 54.2521	54	+0 41 45.5509	29	+0 19 36.8496
20	+1 03 16.2892	55	+0 41 07.5880	30	+0 18 58.8868

Lambert Projection for Kansas (North)

Table II (Cont'd)

1" of Long. = 0".63271486 of θ

Long.	θ	Long.	θ	Long.	θ
97° 31'	+0° 18' 20".9239	98° 06'	-0° 03' 47".7774	98° 41'	-0° 25' 56".4786
32	+0 17 42.9610	07	-0 04 25.7402	42	-0 26 34.4415
33	+0 17 04.9981	08	-0 05 03.7031	43	-0 27 12.4044
34	+0 16 27.0352	09	-0 05 41.6660	44	-0 27 50.3672
35	+0 15 49.0723	10	-0 06 19.6289	45	-0 28 28.3301
97° 36'	+0 15 11.1094	98° 11'	-0 06 57.5918	98° 46'	-0 29 06.2930
37	+0 14 33.1465	12	-0 07 35.5547	47	-0 29 44.2559
38	+0 13 55.1836	13	-0 08 13.5176	48	-0 30 22.2188
39	+0 13 17.2207	14	-0 08 51.4805	49	-0 31 00.1817
40	+0 12 39.2578	15	-0 09 29.4434	50	-0 31 38.1446
97° 41'	+0 12 01.2949	98° 16'	-0 10 07.4063	98° 51'	-0 32 16.1075
42	+0 11 23.3321	17	-0 10 45.3692	52	-0 32 54.0704
43	+0 10 45.3692	18	-0 11 23.3321	53	-0 33 32.0333
44	+0 10 07.4063	19	-0 12 01.2949	54	-0 34 09.9962
45	+0 09 29.4434	20	-0 12 39.2578	55	-0 34 47.9591
97° 46'	+0 08 51.4805	98° 21'	-0 13 17.2207	98° 56'	-0 35 25.9219
47	+0 08 13.5176	22	-0 13 55.1836	57	-0 36 03.8848
48	+0 07 35.5547	23	-0 14 33.1465	58	-0 36 41.8477
49	+0 06 57.5918	24	-0 15 11.1094	59	-0 37 19.8106
50	+0 06 19.6289	25	-0 15 49.0723	99° 00'	-0 37 57.7735
97° 51'	+0 05 41.6660	98° 26'	-0 16 27.0352	99° 01'	-0 38 35.7364
52	+0 05 03.7031	27	-0 17 04.9981	02	-0 39 13.6993
53	+0 04 25.7402	28	-0 17 42.9610	03	-0 39 51.6622
54	+0 03 47.7774	29	-0 18 20.9239	04	-0 40 29.6251
55	+0 03 09.8145	30	-0 18 58.8868	05	-0 41 07.5880
97° 56'	+0 02 31.8516	98° 31'	-0 19 36.8496	99° 06'	-0 41 45.5509
57	+0 01 53.8887	32	-0 20 14.8125	07	-0 42 23.5138
58	+0 01 15.9258	33	-0 20 52.7754	08	-0 43 01.4766
59	+0 00 37.9629	34	-0 21 30.7383	09	-0 43 39.4395
98° 00'	0 00 00.0000	35	-0 22 08.7012	10	-0 44 17.4024
98° 01'	-0 00 37.9629	98° 36'	-0 22 46.6641	99° 11'	-0 44 55.3653
02	-0 01 15.9258	37	-0 23 24.6270	12	-0 45 33.3282
03	-0 01 53.8887	38	-0 24 02.5899	13	-0 46 11.2911
04	-0 02 31.8516	39	-0 24 40.5528	14	-0 46 49.2540
05	-0 03 09.8145	40	-0 25 18.5157	15	-0 47 27.2169

Lambert Projection for Kansas (North)

Table II (Cont'd)

1" of Long. = 0".63271486 of θ

Long.	θ	Long.	θ	Long.	θ
99° 16'	-0° 48' 05".1798	99° 51'	-1° 10' 13".8810	100° 26'	-1° 32' 22".5822
17	-0 48 43.1427	52	-1 10 51.8439	27	-1 33 00.5451
18	-0 49 21.1056	53	-1 11 29.8068	28	-1 33 38.5080
19	-0 49 59.0685	54	-1 12 07.7697	29	-1 34 16.4709
20	-0 50 37.0314	55	-1 12 45.7326	30	-1 34 54.4338
99° 21'	-0 51 14.9942	99° 56'	-1 13 23.6955	100° 31'	-1 35 32.3967
22	-0 51 52.9571	57	-1 14 01.6583	32	-1 36 10.3596
23	-0 52 30.9200	58	-1 14 39.6212	33	-1 36 48.3225
24	-0 53 08.8829	59	-1 15 17.5841	34	-1 37 26.2853
25	-0 53 46.8458	100° 00'	-1 15 55.5470	35	-1 38 04.2482
99° 26'	-0 54 24.8087	100° 01'	-1 16 33.5099	100° 36'	-1 38 42.2111
27	-0 55 02.7716	02	-1 17 11.4728	37	-1 39 20.1740
28	-0 55 40.7345	03	-1 17 49.4357	38	-1 39 58.1369
29	-0 56 18.6974	04	-1 18 27.3986	39	-1 40 36.0998
30	-0 56 56.6603	05	-1 19 05.3615	40	-1 41 14.0627
99° 31'	-0 57 34.6232	100° 06'	-1 19 43.3244	100° 41'	-1 41 52.0256
32	-0 58 12.5861	07	-1 20 21.2873	42	-1 42 29.9885
33	-0 58 50.5489	08	-1 20 59.2502	43	-1 43 07.9514
34	-0 59 28.5118	09	-1 21 37.2131	44	-1 43 45.9143
35	-1 00 06.4747	10	-1 22 15.1759	45	-1 44 23.8772
99° 36'	-1 00 44.4376	100° 11'	-1 22 53.1388	100° 46'	-1 45 01.8401
37	-1 01 22.4005	12	-1 23 31.1017	47	-1 45 39.8029
38	-1 02 00.3634	13	-1 24 09.0646	48	-1 46 17.7658
39	-1 02 38.3263	14	-1 24 47.0275	49	-1 46 55.7287
40	-1 03 16.2892	15	-1 25 24.9904	50	-1 47 33.6916
99° 41'	-1 03 54.2521	100° 16'	-1 26 02.9533	100° 51'	-1 48 11.6545
42	-1 04 32.2150	17	-1 26 40.9162	52	-1 48 49.6174
43	-1 05 10.1779	18	-1 27 18.8791	53	-1 49 27.5803
44	-1 05 48.1408	19	-1 27 56.8420	54	-1 50 05.5432
45	-1 06 26.1036	20	-1 28 34.8049	55	-1 50 43.5061
99° 46'	-1 07 04.0665	100° 21'	-1 29 12.7678	100° 56'	-1 51 21.4690
47	-1 07 42.0294	22	-1 29 50.7306	57	-1 51 59.4319
48	-1 08 19.9923	23	-1 30 28.6935	58	-1 52 37.3948
49	-1 08 57.9552	24	-1 31 06.6564	59	-1 53 15.3576
50	-1 09 35.9181	25	-1 31 44.6193	101° 00'	-1 53 53.3205

Lambert Projection for Kansas (North)

Table II (Cont'd)

1" of Long. = 0".63271486 of θ

Long.	θ	Long.	θ	Long.	θ
101° 01'	-1° 54' 31".2834	101° 31'	-2° 13' 30".1702	102° 01'	-2° 32' 29.0569
02	-1 55 09.2463	32	-2 14 08.1331	02	-2 33 07.0198
03	-1 55 47.2092	33	-2 14 46.0960	03	-2 33 44.9827
04	-1 56 25.1721	34	-2 15 24.0589	04	-2 34 22.9456
05	-1 57 03.1350	35	-2 16 02.0218	05	-2 35 00.9085
101° 06'	-1 57 41.0979	101° 36'	-2 16 39.9846	102° 06'	-2 35 38.8714
07	-1 58 19.0608	37	-2 17 17.9475	07	-2 36 16.8343
08	-1 58 57.0237	38	-2 17 55.9104	08	-2 36 54.7972
09	-1 59 34.9866	39	-2 18 33.8733	09	-2 37 32.7601
10	-2 00 12.9495	40	-2 19 11.8362	10	-2 38 10.7230
101° 11'	-2 00 50.9123	101° 41'	-2 19 49.7991	102° 11'	-2 38 48.6859
12	-2 01 28.8752	42	-2 20 27.7620	12	-2 39 26.6488
13	-2 02 06.8381	43	-2 21 05.7249	13	-2 40 04.6116
14	-2 02 44.8010	44	-2 21 43.6878	14	-2 40 42.5745
15	-2 03 22.7639	45	-2 22 21.6507	15	-2 41 20.5374
101° 16'	-2 04 00.7268	101° 46'	-2 22 59.6136	102° 16	-2 41 58.5003
17	-2 04 38.6897	47	-2 23 37.5765	17	-2 42 36.4632
18	-2 05 16.6526	48	-2 24 15.5393	18	-2 43 14.4261
19	-2 05 54.6155	49	-2 24 53.5022	19	-2 43 52.3890
20	-2 06 32.5784	50	-2 25 31.4651	20	-2 44 30.3519
101° 21'	-2 07 10.5413	101° 51'	-2 26 09.4280	102° 21'	-2 45 08.3148
22	-2 07 48.5042	52	-2 26 47.3909	22	-2 45 46.2777
23	-2 08 26.4671	53	-2 27 25.3538	23	-2 46 24.2406
24	-2 09 04.4299	54	-2 28 03.3167	24	-2 47 02.2035
25	-2 09 42.3928	55	-2 28 41.2796	25	-2 47 40.1663
101° 26'	-2 10 20.3557	101° 56'	-2 29 19.2425	102° 26'	-2 48 18.1292
27	-2 10 58.3186	57	-2 29 57.2054	27	-2 48 56.0921
28	-2 11 36.2815	58	-2 30 35.1683	28	-2 49 34.0550
29	-2 12 14.2444	59	-2 31 13.1312	29	-2 50 12.0179
30	-2 12 52.2073	102° 00'	-2 31 51.0941	30	-2 50 49.9808

Lambert Projection for Kansas (South)

Table I

Lat.	R (feet)	Y' y value on central meridian (feet)	Tabular difference for 1 sec. of lat. (feet)	Scale in units of 7th place of logs	Scale expressed as a ratio
36° 40'	27,351,521.50	0	101.14767	+746.4	1.0001719
41	27,345,452.64	6,068.86	101.14733	+719.4	1.0001656
42	27,339,383.80	12,137.70	101.14717	+692.7	1.0001595
43	27,333,314.97	18,206.53	101.14683	+666.4	1.0001534
44	27,327,246.16	24,275.34	101.14633	+640.4	1.0001475
45	27,321,177.38	30,344.12	101.14617	+614.8	1.0001416
36° 46'	27,315,108.61	36,412.89	101.14583	+589.6	1.0001358
47	27,309,039.86	42,481.64	101.14550	+564.7	1.0001300
48	27,302,971.13	48,550.37	101.14533	+540.2	1.0001244
49	27,296,902.41	54,619.09	101.14500	+516.0	1.0001188
50	27,290,833.71	60,687.79	101.14467	+492.2	1.0001133
36° 51'	27,284,765.03	66,756.47	101.14450	+468.7	1.0001079
52	27,278,696.36	72,825.14	101.14433	+445.6	1.0001026
53	27,272,627.70	78,893.80	101.14400	+422.9	1.0000974
54	27,266,559.06	84,962.44	101.14367	+400.5	1.0000922
55	27,260,490.44	91,031.06	101.14350	+378.5	1.0000872
36° 56'	27,254,421.83	97,099.67	101.14333	+356.9	1.0000822
57	27,248,353.23	103,168.27	101.14317	+335.6	1.0000773
58	27,242,284.64	109,236.86	101.14300	+314.7	1.0000725
59	27,236,216.06	115,305.44	101.14267	+294.1	1.0000677
37° 00'	27,230,147.50	121,374.00	101.14267	+273.9	1.0000631
37° 01'	27,224,078.94	127,442.56	101.14233	+254.1	1.0000585
02	27,218,010.40	133,511.10	101.14233	+234.6	1.0000540
03	27,211,941.86	139,579.64	101.14200	+215.5	1.0000496
04	27,205,873.34	145,648.16	101.14200	+196.8	1.0000453
05	27,199,804.82	151,716.68	101.14183	+178.4	1.0000411
37° 06'	27,193,736.31	157,785.19	101.14167	+160.4	1.0000369
07	27,187,667.81	163,853.69	101.14150	+142.7	1.0000329
08	27,181,599.32	169,922.18	101.14150	+125.4	1.0000289
09	27,175,530.83	175,990.67	101.14133	+108.4	1.0000250
10	27,169,462.35	182,059.15	101.14117	+91.9	1.0000212
37° 11'	27,163,393.88	188,127.62	101.14117	+75.6	1.0000174
12	27,157,325.41	194,196.09	101.14117	+59.8	1.0000138
13	27,151,256.94	200,264.56	101.14100	+44.3	1.0000102
14	27,145,188.48	206,333.02	101.14100	+29.2	1.0000067
15	27,139,120.02	212,401.48	101.14083	+14.4	1.0000033

Lambert Projection for Kansas (South)

Table I (Cont'd)

Lat.	R (feet)	Y' y value on central meridian (feet)	Tabular difference for 1 sec. of lat. (feet)	Scale in units of 7th place of logs	Scale expressed as a ratio
37° 16'	27,133,051.57	218,469.93	101.14100	0.0	1.0000000
17	27,126,983.11	224,538.39	101.14083	-14.1	0.9999968
18	27,120,914.66	230,606.84	101.14067	-27.8	0.9999936
19	27,114,846.22	236,675.28	101.14083	-41.1	0.9999905
20	27,108,777.77	242,743.73	101.14083	-54.0	0.9999876
37° 21'	27,102,709.32	248,812.18	101.14083	-66.6	0.9999847
22	27,096,640.87	254,880.63	101.14067	-78.8	0.9999819
23	27,090,572.43	260,949.07	101.14083	-90.7	0.9999791
24	27,084,503.98	267,017.52	101.14083	-102.2	0.9999765
25	27,078,435.53	273,085.97	101.14083	-113.4	0.9999739
37° 26'	27,072,367.08	279,154.42	101.14100	-124.2	0.9999714
27	27,066,298.62	285,222.88	101.14100	-134.6	0.9999690
28	27,060,230.16	291,291.34	101.14100	-144.6	0.9999667
29	27,054,161.70	297,359.80	101.14100	-154.3	0.9999645
30	27,048,093.24	303,428.26	101.14117	-163.6	0.9999623
37° 31'	27,042,024.77	309,496.73	101.14133	-172.6	0.9999603
32	27,035,956.29	315,565.21	101.14133	-181.2	0.9999583
33	27,029,887.81	321,633.69	101.14150	-189.4	0.9999564
34	27,023,819.32	327,702.18	101.14150	-197.3	0.9999546
35	27,017,750.83	333,770.67	101.14167	-204.8	0.9999528
37° 36'	27,011,682.33	339,839.17	101.14183	-211.9	0.9999512
37	27,005,613.82	345,907.68	101.14200	-218.7	0.9999496
38	26,999,545.30	351,976.20	101.14200	-225.1	0.9999482
39	26,993,476.78	358,044.72	101.14233	-231.1	0.9999468
40	26,987,408.24	364,113.26	101.14233	-236.8	0.9999455
37° 41'	26,981,339.70	370,181.80	101.14250	-242.2	0.9999442
42	26,975,271.15	376,250.35	101.14283	-247.1	0.9999431
43	26,969,202.58	382,318.92	101.14283	-251.7	0.9999420
44	26,963,134.01	388,387.49	101.14317	-255.9	0.9999411
45	26,957,065.42	394,456.08	101.14333	-259.8	0.9999402
37° 46'	26,950,996.82	400,524.68	101.14350	-263.3	0.9999394
47	26,944,928.21	406,593.29	101.14383	-266.4	0.9999387
48	26,938,859.58	412,661.92	101.14400	-269.2	0.9999380
49	26,932,790.94	418,730.56	101.14417	-271.6	0.9999375
50	26,926,722.29	424,799.21	101.14450	-273.6	0.9999370

Lambert Projection for Kansas (South)

Table I (Cont'd)

Lat.	R (feet)	Y' y value on central meridian (feet)	Tabular difference for 1 sec. of lat. (feet)	Scale in units of 7th place of logs	Scale expressed as a ratio
37° 51'	26,920,653.62	430,867.88	101.14483	-275.3	0.9999366
52	26,914,584.93	436,936.57	101.14500	-276.6	0.9999363
53	26,908,516.23	443,005.27	101.14533	-277.5	0.9999361
54	26,902,447.51	449,073.99	101.14550	-278.1	0.9999360
55	26,896,378.78	455,142.72	101.14583	-278.3	0.9999359
37° 56'	26,890,310.03	461,211.47	101.14617	-278.1	0.9999360
57	26,884,241.26	467,280.24	101.14650	-277.6	0.9999361
58	26,878,172.47	473,349.03	101.14667	-276.7	0.9999363
59	26,872,103.67	479,417.83	101.14717	-275.4	0.9999366
38° 00'	26,866,034.84	485,486.66	101.14733	-273.8	0.9999370
38° 01'	26,859,966.00	491,555.50	101.14783	-271.8	0.9999374
02	26,853,897.13	497,624.37	101.14800	-269.5	0.9999379
03	26,847,828.25	503,693.25	101.14850	-266.8	0.9999386
04	26,841,759.34	509,762.16	101.14883	-263.7	0.9999393
05	26,835,690.41	515,831.09	101.14933	-260.2	0.9999401
38° 06'	26,829,621.45	521,900.05	101.14950	-256.4	0.9999410
07	26,823,552.48	527,969.02	101.15000	-252.2	0.9999419
08	26,817,483.48	534,038.02	101.15050	-247.7	0.9999430
09	26,811,414.45	540,107.05	101.15083	-242.7	0.9999441
10	26,805,345.40	546,176.10	101.15117	-237.4	0.9999453
38° 11'	26,799,276.33	552,245.17	101.15167	-231.8	0.9999466
12	26,793,207.23	558,314.27	101.15200	-225.7	0.9999480
13	26,787,138.11	564,383.39	101.15250	-219.3	0.9999495
14	26,781,068.96	570,452.54	101.15300	-212.6	0.9999510
15	26,774,999.78	576,521.72	101.15350	-205.4	0.9999527
38° 16'	26,768,930.57	582,590.93	101.15400	-197.9	0.9999544
17	26,762,861.33	588,660.17	101.15433	-190.1	0.9999562
18	26,756,792.07	594,729.43	101.15483	-181.8	0.9999581
19	26,750,722.78	600,798.72	101.15550	-173.2	0.9999601
20	26,744,653.45	606,868.05	101.15583	-164.2	0.9999622
38° 21'	26,738,584.10	612,937.40	101.15633	-154.9	0.9999643
22	26,732,514.72	619,006.78	101.15700	-145.2	0.9999666
23	26,726,445.30	625,076.20	101.15733	-135.1	0.9999689
24	26,720,375.86	631,145.64	101.15800	-124.7	0.9999713
25	26,714,306.38	637,215.12	101.15867	-113.9	0.9999738

Lambert Projection for Kansas (South)

Table I (Cont'd)

Lat.	R (feet)	Y' y value on central meridian (feet)	Tabular difference for 1 sec. of lat. (feet)	Scale in units of 7th place of logs	Scale expressed as a ratio
38° 26'	26,708,236.86	643,284.64	101.15900	-102.7	0.9999764
27	26,702,167.32	649,354.18	101.15967	-91.2	0.9999790
28	26,696,097.74	655,423.76	101.16017	-79.2	0.9999818
29	26,690,028.13	661,493.37	101.16083	-67.0	0.9999846
30	26,683,958.48	667,563.02	101.16150	-54.3	0.9999875
38° 31'	26,677,888.79	673,632.71	101.16200	-41.3	0.9999905
32	26,671,819.07	679,702.43	101.16267	-27.9	0.9999936
33	26,665,749.31	685,772.19	101.16317	-14.1	0.9999968
34	26,659,679.52	691,841.98	101.16383	0.0	1.0000000
35	26,653,609.69	697,911.81	101.16450	+14.5	1.0000033
38° 36'	26,647,539.82	703,981.68	101.16517	+29.4	1.0000068
37	26,641,469.91	710,051.59	101.16567	+44.6	1.0000103
38	26,635,399.97	716,121.53	101.16650	+60.2	1.0000139
39	26,629,329.98	722,191.52	101.16717	+76.2	1.0000175
40	26,623,259.95	728,261.55	101.16767	+92.5	1.0000213
38° 41'	26,617,189.89	734,331.61	101.16850	+109.3	1.0000252
42	26,611,119.78	740,401.72	101.16917	+126.3	1.0000291
43	26,605,049.63	746,471.87	101.17000	+143.8	1.0000331
44	26,598,979.43	752,542.07	101.17050	+161.6	1.0000372
45	26,592,909.20	758,612.30	101.17133	+179.8	1.0000414
38° 46'	26,586,838.92	764,682.58	101.17200	+198.4	1.0000457
47	26,580,768.60	770,752.90	101.17283	+217.3	1.0000500
48	26,574,698.23	776,823.27	101.17350	+236.6	1.0000545
49	26,568,627.82	782,893.68	101.17433	+256.3	1.0000590
50	26,562,557.36	788,964.14	101.17500	+276.4	1.0000636
38° 51'	26,556,486.86	795,034.64	101.17583	+296.8	1.0000683
52	26,550,416.31	801,105.19	101.17650	+317.6	1.0000731
53	26,544,345.72	807,175.78	101.17750	+338.7	1.0000780
54	26,538,275.07	813,246.43	101.17817	+360.3	1.0000830
55	26,532,204.38	819,317.12	101.17900	+382.2	1.0000880
38° 56'	26,526,133.64	825,387.86	101.17967	+404.5	1.0000931
57	26,520,062.86	831,458.64	101.18067	+427.1	1.0000983
58	26,513,992.02	837,529.48	101.18150	+450.1	1.0001036
59	26,507,921.13	843,600.37	101.18233	+473.5	1.0001090
39° 00'	26,501,850.19	849,671.31		+497.3	1.0001145

Lambert Projection for Kansas (South)

Table II

1" of Long. = 0".61452811 of θ

Long.	θ	Long.	θ	Long.	θ
94° 30'	+2° 27' 29".2047				
31	+2 26 52.3330	95° 06'	+2° 05' 21".8240	95° 41'	+1° 43' 51".3150
32	+2 26 15.4614	07	+2 04 44.9523	42	+1 43 14.4433
33	+2 25 38.5897	08	+2 04 08.0807	43	+1 42 37.5716
34	+2 25 01.7180	09	+2 03 31.2090	44	+1 42 00.6999
35	+2 24 24.8463	10	+2 02 54.3373	45	+1 41 23.8283
94° 36'	+2 23 47.9746	95° 11'	+2 02 17.4656	95° 46'	+1 40 46.9566
37	+2 23 11.1029	12	+2 01 40.5939	47	+1 40 10.0849
38	+2 22 34.2312	13	+2 01 03.7222	48	+1 39 33.2132
39	+2 21 57.3596	14	+2 00 26.8505	49	+1 38 56.3415
40	+2 21 20.4879	15	+1 59 49.9788	50	+1 38 19.4698
94° 41'	+2 20 43.6162	95° 16'	+1 59 13.1072	95° 51'	+1 37 42.5981
42	+2 20 06.7445	17	+1 58 36.2355	52	+1 37 05.7265
43	+2 19 29.8728	18	+1 57 59.3638	53	+1 36 28.8548
44	+2 18 53.0011	19	+1 57 22.4921	54	+1 35 51.9831
45	+2 18 16.1294	20	+1 56 45.6204	55	+1 35 15.1114
94° 46'	+2 17 39.2578	95° 21'	+1 56 08.7487	95° 56'	+1 34 38.2397
47	+2 17 02.3861	22	+1 55 31.8770	57	+1 34 01.3680
48	+2 16 25.5144	23	+1 54 55.0054	58	+1 33 24.4963
49	+2 15 48.6427	24	+1 54 18.1337	59	+1 32 47.6246
50	+2 15 11.7710	25	+1 53 41.2620	96° 00'	+1 32 10.7530
94° 51'	+2 14 34.8993	95° 26'	+1 53 04.3903	96° 01'	+1 31 33.8813
52	+2 13 58.0276	27	+1 52 27.5186	02	+1 30 57.0096
53	+2 13 21.1559	28	+1 51 50.6469	03	+1 30 20.1379
54	+2 12 44.2843	29	+1 51 13.7752	04	+1 29 43.2662
55	+2 12 07.4126	30	+1 50 36.9036	05	+1 29 06.3945
94° 56'	+2 11 30.5409	95° 31'	+1 50 00.0319	96° 06'	+1 28 29.5228
57	+2 10 53.6692	32	+1 49 23.1602	07	+1 27 52.6512
58	+2 10 16.7975	33	+1 48 46.2885	08	+1 27 15.7795
59	+2 09 39.9258	34	+1 48 09.4168	09	+1 26 38.9078
95° 00'	+2 09 03.0541	35	+1 47 32.5451	10	+1 26 02.0361
95° 01'	+2 08 26.1825	95° 36'	+1 46 55.6734	96° 11'	+1 25 25.1644
02	+2 07 49.3108	37	+1 46 18.8017	12	+1 24 48.2927
03	+2 07 12.4391	38	+1 45 41.9301	13	+1 24 11.4210
04	+2 06 35.5674	39	+1 45 05.0584	14	+1 23 34.5494
05	+2 05 58.6957	40	+1 44 28.1867	15	+1 22 57.6777

Lambert Projection for Kansas (South)

Table II (Cont'd)

1" of Long. = 0".61452811 of θ

Long.	θ	Long.	θ	Long.	θ
96° 16'	+1° 22' 20".8060	96° 51'	+1° 00' 50".2970	97° 26'	+0° 39' 19".7879
17	+1 21 43.9343	52	+1 00 13.4253	27	+0 38 42.9162
18	+1 21 07.0626	53	+0 59 36.5536	28	+0 38 06.0446
19	+1 20 30.1909	54	+0 58 59.6819	29	+0 37 29.1729
20	+1 19 53.3192	55	+0 58 22.8102	30	+0 36 52.3012
96° 21'	+1 19 16.4475	96° 56'	+0 57 45.9385	97° 31'	+0 36 15.4295
22	+1 18 39.5759	57	+0 57 09.0668	32	+0 35 38.5578
23	+1 18 02.7042	58	+0 56 32.1951	33	+0 35 01.6861
24	+1 17 25.8325	59	+0 55 55.3235	34	+0 34 24.8144
25	+1 16 48.9608	97° 00'	+0 55 18.4518	35	+0 33 47.9428
96° 26'	+1 16 12.0891	97° 01'	+0 54 41.5801	97° 36'	+0 33 11.0711
27	+1 15 35.2174	02	+0 54 04.7084	37	+0 32 34.1994
28	+1 14 58.3457	03	+0 53 27.8367	38	+0 31 57.3277
29	+1 14 21.4741	04	+0 52 50.9650	39	+0 31 20.4560
30	+1 13 44.6024	05	+0 52 14.0933	40	+0 30 43.5843
96° 31'	+1 13 07.7307	97° 06'	+0 51 37.2217	97° 41'	+0 30 06.7126
32	+1 12 30.8590	07	+0 51 00.3500	42	+0 29 29.8409
33	+1 11 53.9873	08	+0 50 23.4783	43	+0 28 52.9693
34	+1 11 17.1156	09	+0 49 46.6066	44	+0 28 16.0976
35	+1 10 40.2439	10	+0 49 09.7349	45	+0 27 39.2259
96° 36'	+1 10 03.3722	97° 11'	+0 48 32.8632	97° 46'	+0 27 02.3542
37	+1 09 26.5006	12	+0 47 55.9915	47	+0 26 25.4825
38	+1 08 49.6289	13	+0 47 19.1199	48	+0 25 48.6108
39	+1 08 12.7572	14	+0 46 42.2482	49	+0 25 11.7391
40	+1 07 35.8855	15	+0 46 05.3765	50	+0 24 34.8675
96° 41'	+1 06 59.0138	97° 16'	+0 45 28.5048	97° 51'	+0 23 57.9958
42	+1 06 22.1421	17	+0 44 51.6331	52	+0 23 21.1241
43	+1 05 45.2704	18	+0 44 14.7614	53	+0 22 44.2524
44	+1 05 08.3988	19	+0 43 37.8897	54	+0 22 07.3807
45	+1 04 31.5271	20	+0 43 01.0180	55	+0 21 30.5090
96° 46'	+1 03 54.6554	97° 21'	+0 42 24.1464	97° 56'	+0 20 53.6373
47	+1 03 17.7837	22	+0 41 47.2747	57	+0 20 16.7657
48	+1 02 40.9120	23	+0 41 10.4030	58	+0 19 39.8940
49	+1 02 04.0403	24	+0 40 33.5313	59	+0 19 03.0223
50	+1 01 27.1686	25	+0 39 56.6596	98° 00'	+0 18 26.1506

Lambert Projection for Kansas (South)

Table II (Cont'd)

1" of Long. = 0".61452811 of θ

Long.	θ	Long.	θ	Long.	θ
98° 01'	+0° 17' 49".2789	98° 36'	-0° 03' 41".2301	99° 11'	-0° 25' 11".7391
02	+0 17 12.4072	37	-0 04 18.1018	12	-0 25 48.6108
03	+0 16 35.5355	38	-0 04 54.9735	13	-0 26 25.4825
04	+0 15 58.6638	39	-0 05 31.8452	14	-0 27 02.3542
05	+0 15 21.7922	40	-0 06 08.7169	15	-0 27 39.2259
98° 06'	+0 14 44.9205	98° 41'	-0 06 45.5886	99° 16'	-0 28 16.0976
07	+0 14 08.0488	42	-0 07 22.4602	17	-0 28 52.9693
08	+0 13 31.1771	43	-0 07 59.3319	18	-0 29 29.8409
09	+0 12 54.3054	44	-0 08 36.2036	19	-0 30 06.7126
10	+0 12 17.4337	45	-0 09 13.0753	20	-0 30 43.5843
98° 11'	+0 11 40.5620	98° 46'	-0 09 49.9470	99° 21'	-0 31 20.4560
12	+0 11 03.6904	47	-0 10 26.8187	22	-0 31 57.3277
13	+0 10 26.8187	48	-0 11 03.6904	23	-0 32 34.1994
14	+0 09 49.9470	49	-0 11 40.5620	24	-0 33 11.0711
15	+0 09 13.0753	50	-0 12 17.4337	25	-0 33 47.9428
98° 16'	+0 08 36.2036	98° 51'	-0 12 54.3054	99° 26'	-0 34 24.8144
17	+0 07 59.3319	52	-0 13 31.1771	27	-0 35 01.6861
18	+0 07 22.4602	53	-0 14 08.0488	28	-0 35 38.5578
19	+0 06 45.5886	54	-0 14 44.9205	29	-0 36 15.4295
20	+0 06 08.7169	55	-0 15 21.7922	30	-0 36 52.3012
98° 21'	+0 05 31.8452	98° 56'	-0 15 58.6638	99° 31'	-0 37 29.1729
22	+0 04 54.9735	57	-0 16 35.5355	32	-0 38 06.0446
23	+0 04 18.1018	58	-0 17 12.4072	33	-0 38 42.9162
24	+0 03 41.2301	59	-0 17 49.2789	34	-0 39 19.7879
25	+0 03 04.3584	99° 00'	-0 18 26.1506	35	-0 39 56.6596
98° 26'	+0 02 27.4867	99° 01'	-0 19 03.0223	99° 36'	-0 40 33.5313
27	+0 01 50.6151	02	-0 19 39.8940	37	-0 41 10.4030
28	+0 01 13.7434	03	-0 20 16.7657	38	-0 41 47.2747
29	+0 00 36.8717	04	-0 20 53.6373	39	-0 42 24.1464
30	0 00 00.0000	05	-0 21 30.5090	40	-0 43 01.0180
98° 31'	-0 00 36.8717	99° 06'	-0 22 07.3807	99° 41'	-0 43 37.8897
32	-0 01 13.7434	07	-0 22 44.2524	42	-0 44 14.7614
33	-0 01 50.6151	08	-0 23 21.1241	45	-0 44 51.6331
34	-0 02 27.4867	09	-0 23 57.9958	44	-0 45 28.5048
35	-0 03 04.3584	10	-0 24 34.8675	45	-0 46 05.3765

Lambert Projection for Kansas (South)

Table II (Cont'd)

1" of Long. = 0".61452811 of θ

Long.	θ	Long.	θ	Long.	θ
99° 46'	-0° 46' 42".2482	100° 21'	-1° 08' 12".7572	100° 56'	-1° 29' 43".2662
47	-0 47 19.1199	22	-1 08 49.6289	57	-1 30 20.1379
48	-0 47 55.9915	23	-1 09 26.5006	58	-1 30 57.0096
49	-0 48 32.8632	24	-1 10 03.3722	59	-1 31 33.8813
50	-0 49 09.7349	25	-1 10 40.2439	101° 00'	-1 32 10.7530
99° 51'	-0 49 46.6066	100° 26'	-1 11 17.1156	101° 01'	-1 32 47.6246
52	-0 50 23.4783	27	-1 11 53.9873	02	-1 33 24.4963
53	-0 51 00.3500	28	-1 12 30.8590	03	-1 34 01.3680
54	-0 51 37.2217	29	-1 13 07.7307	04	-1 34 38.2397
55	-0 52 14.0933	30	-1 13 44.6024	05	-1 35 15.1114
99° 56'	-0 52 50.9650	100° 31'	-1 14 21.4741	101° 06'	-1 35 51.9831
57	-0 53 27.8367	32	-1 14 58.3457	07	-1 36 28.8548
58	-0 54 04.7084	33	-1 15 35.2174	08	-1 37 05.7265
59	-0 54 41.5801	34	-1 16 12.0891	09	-1 37 42.5981
100° 00'	-0 55 18.4518	35	-1 16 48.9608	10	-1 38 19.4698
100° 01'	-0 55 55.3235	100° 36'	-1 17 25.8325	101° 11'	-1 38 56.3415
02	-0 56 32.1951	37	-1 18 02.7042	12	-1 39 33.2132
03	-0 57 09.0668	38	-1 18 39.5759	13	-1 40 10.0849
04	-0 57 45.9385	39	-1 19 16.4475	14	-1 40 46.9566
05	-0 58 22.8102	40	-1 19 53.3192	15	-1 41 23.8283
100° 06'	-0 58 59.6819	100° 41'	-1 20 30.1909	101° 16'	-1 42 00.6999
07	-0 59 36.5536	42	-1 21 07.0626	17	-1 42 37.5716
08	-1 00 13.4253	43	-1 21 43.9343	18	-1 43 14.4433
09	-1 00 50.2970	44	-1 22 20.8060	19	-1 43 51.3150
10	-1 01 27.1686	45	-1 22 57.6777	20	-1 44 28.1867
100° 11'	-1 02 04.0403	100° 46'	-1 23 34.5494	101° 21'	-1 45 05.0584
12	-1 02 40.9120	47	-1 24 11.4210	22	-1 45 41.9301
13	-1 03 17.7837	48	-1 24 48.2927	23	-1 46 18.8017
14	-1 03 54.6554	49	-1 25 25.1644	24	-1 46 55.6734
15	-1 04 31.5271	50	-1 26 02.0361	25	-1 47 32.5451
100° 16'	-1 05 08.3988	100° 51'	-1 26 38.9078	101° 26'	-1 48 09.4168
17	-1 05 45.2704	52	-1 27 15.7795	27	-1 48 46.2885
18	-1 06 22.1421	53	-1 27 52.6512	28	-1 49 23.1602
19	-1 06 59.0138	54	-1 28 29.5228	29	-1 50 00.0319
20	-1 07 35.8855	55	-1 29 06.3945	30	-1 50 36.9036

Lambert Projection for Kansas (South)

Table II (Cont'd)

1" of Long. = 0".61452811 of θ

Long.	θ	Long.	θ
101° 31'	-1° 51' 13".7752	102° 06'	-2° 12' 44".2843
32	-1 51 50.6469	07	-2 13 21.1559
33	-1 52 27.5186	08	-2 13 58.0276
34	-1 53 04.3903	09	-2 14 34.8993
35	-1 53 41.2620	10	-2 15 11.7710
101° 36'	-1 54 18.1337	102° 11'	-2 15 48.6427
37	-1 54 55.0054	12	-2 16 25.5144
38	-1 55 31.8770	13	-2 17 02.3861
39	-1 56 08.7487	14	-2 17 39.2578
40	-1 56 45.6204	15	-2 18 16.1294
101° 41'	-1 57 22.4921	102° 16'	-2 18 53.0011
42	-1 57 59.3638	17	-2 19 29.8728
43	-1 58 36.2355	18	-2 20 06.7445
44	-1 59 13.1072	19	-2 20 43.6162
45	-1 59 49.9788	20	-2 21 20.4879
101° 46'	-2 00 26.8505	102° 21'	-2 21 57.3596
47	-2 01 03.7222	22	-2 22 34.2312
48	-2 01 40.5939	23	-2 23 11.1029
49	-2 02 17.4656	24	-2 23 47.9746
50	-2 02 54.3373	25	-2 24 24.8463
101° 51'	-2 03 31.2090	102° 26'	-2 25 01.7180
52	-2 04 08.0807	27	-2 25 38.5897
53	-2 04 44.9523	28	-2 26 15.4614
54	-2 05 21.8240	29	-2 26 52.3330
55	-2 05 58.6957	30	-2 27 29.2047
101° 56'	-2 06 35.5674		
57	-2 07 12.4391		
58	-2 07 49.3108		
59	-2 08 26.1825		
102° 00'	-2 09 03.0541		
102° 01'	-2 09 39.9258		
02	-2 10 16.7975		
03	-2 10 53.6692		
04	-2 11 30.5409		
05	-2 12 07.4126		

CORRECTIONS TO NATURAL SCALE RATIOS*
(in units of the 7th decimal place)

For Lambert Projection

Δø' as argument			
Δø'	Corr'n (Plus)	Δø'	Corr'n (Plus)
1	0	31	34
2	0	32	36
3	0	33	38
4	1	34	40
5	1	35	43
6	1	36	45
7	2	37	48
8	2	38	51
9	3	39	53
10	4	40	56
11	4	41	59
12	5	42	62
13	6	43	65
14	7	44	68
15	8	45	71
16	9	46	74
17	10	47	77
18	11	48	81
19	13	49	84
20	14	50	88
21	15	51	91
22	17	52	95
23	19	53	98
24	20	54	102
25	22	55	106
26	24	56	110
27	26	57	114
28	27	58	118
29	29	59	122
30	32	60	126

Δø' is the difference in latitude in minutes of the ends of the line.

For Lambert or transverse Mercator Projection

Δy or Δx	Corr'n (Plus)
10,000	0
20,000	0
30,000	1
40,000	2
50,000	2
60,000	3
70,000	5
80,000	6
90,000	8
100,000	10
110,000	11
120,000	14
130,000	16
140,000	19
150,000	21
160,000	24
170,000	27
180,000	31
190,000	34
200,000	38
210,000	42
220,000	46
230,000	50
240,000	55
250,000	59
260,000	64
270,000	69
280,000	74
290,000	80
300,000	86
310,000	91
320,000	97
330,000	103
340,000	110
350,000	116

*Scale ratio interpolated for mean latitude or mean x' of the ends of a line and corrected by the above table is a true mean value accurate to within one in the seventh decimal place.

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