Table A19 (CONTINUED)

n	b_n	c_n	d_n	n	b_n	c_n	d_n
7	−2.356	1.245	0.4533	**29**	−6.074	1.934	0.1907
8	−2.696	1.333	0.4186	**30**	−6.150	1.949	0.1872
9	−2.968	1.400	0.3900				
10	−3.262	1.471	0.3600	**31**	−6.248	1.965	0.1840
				32	−6.324	1.976	0.1811
11	−3.485	1.515	0.3451	**33**	−6.402	1.988	0.1781
12	−3.731	1.571	0.3270	**34**	−6.480	2.000	0.1755
13	−3.936	1.613	0.3111	**35**	−6.559	2.012	0.1727
14	−4.155	1.655	0.2969				
15	−4.373	1.695	0.2842	**36**	−6.640	2.024	0.1702
				37	−6.721	2.037	0.1677
16	−4.567	1.724	0.2727	**38**	−6.803	2.049	0.1656
17	−4.713	1.739	0.2622	**39**	−6.887	2.062	0.1633
18	−4.885	1.770	0.2528	**40**	−6.961	2.075	0.1612
19	−5.018	1.786	0.2440				
20	−5.153	1.802	0.2359	**41**	−7.035	2.088	0.1591
				42	−7.111	2.101	0.1572
21	−5.291	1.818	0.2264	**43**	−7.188	2.114	0.1552
22	−5.413	1.835	0.2207	**44**	−7.266	2.128	0.1534
23	−5.508	1.848	0.2157	**45**	−7.345	2.141	0.1516
24	−5.605	1.862	0.2106				
25	−5.704	1.876	0.2063	**46**	−7.414	2.155	0.1499
				47	−7.484	2.169	0.1482
26	−5.803	1.890	0.2020	**48**	−7.555	2.183	0.1466
27	−5.905	1.905	0.1980	**49**	−7.615	2.198	0.1451
28	−5.988	1.919	0.1943	**50**	−7.677	2.212	0.1436

Table A20 QUANTILES OF THE SMIRNOV TEST STATISTIC FOR TWO SAMP OF EQUAL SIZE n^a

	One-Sided Test: $p = .90$	.95	.975	.99	.995		*One-Sided Test:* $p = .90$	.95	.975	.99	.995
	Two-Sided Test: $p = .80$	.90	.95	.98	.99		*Two-sided Test:* $p = .80$	.90	.95	.98	.99
$n = 3$	2/3	2/3				$n = 20$	6/20	7/20	8/20	9/20	10/20
4	3/4	3/4	3/4			21	6/21	7/21	8/21	9/21	10/21
5	3/5	3/5	4/5	4/5	4/5	22	7/22	8/22	8/22	10/22	10/22
6	3/6	4/6	4/6	5/6	5/6	23	7/23	8/23	9/23	10/23	10/23
7	4/7	4/7	5/7	5/7	5/7	24	7/24	8/24	9/24	10/24	11/24
8	4/8	4/8	5/8	5/8	6/8	25	7/25	8/25	9/25	10/25	11/25
9	4/9	5/9	5/9	6/9	6/9	26	7/26	8/26	9/26	10/26	11/26
10	4/10	5/10	6/10	6/10	7/10	27	7/27	8/27	9/27	11/27	11/27
11	5/11	5/11	6/11	7/11	7/11	28	8/28	9/28	10/28	11/28	12/28
12	5/12	5/12	6/12	7/12	7/12	29	8/29	9/29	10/29	11/29	12/29
13	5/13	6/13	6/13	7/13	8/13	30	8/30	9/30	10/30	11/30	12/30
14	5/14	6/14	7/14	7/14	8/14	31	8/31	9/31	10/31	11/31	12/31
15	5/15	6/15	7/15	8/15	8/15	32	8/32	9/32	10/32	12/32	12/32
16	6/16	6/16	7/16	8/16	9/16	34	8/34	10/34	11/34	12/34	13/34
17	6/17	7/17	7/17	8/17	9/17	36	9/36	10/36	11/36	12/36	13/36
18	6/18	7/18	8/18	9/18	9/19	38	9/38	10/38	11/38	13/38	14/38
19	6/19	7/19	8/19	9/19	9/19	40	9/40	10/40	12/40	13/40	14/40
				Approximation for $n > 40$:			$\frac{1.52}{\sqrt{n}}$	$\frac{1.73}{\sqrt{n}}$	$\frac{1.92}{\sqrt{n}}$	$\frac{2.15}{\sqrt{n}}$	$\frac{2.30}{\sqrt{n}}$

SOURCE. Adapted from Birnbaum and Hall (1960), with permission from the Institute of Mathematical Statistics.

[a] The entries in this table are selected quantiles w_p of the Smirnov two-sample test statistic T defined by Equations 6.3.2 and 6.3.3 for the one-tailed test and defined by Equation 6.3.1 for the two-tailed test. Reject H_0 at the level α if T exceeds the $1-\alpha$ quantile of T as given in this table. The test statistic is a discrete random variable, so the exact level of significance may be less than the apparent α used in this table.

Table A21 QUANTILES OF THE SMIRNOV TEST STATISTIC FOR TWO SAMPLES OF DIFFERENT SIZE n AND m[a]

One-Sided Test:		$p = .90$	.95	.975	.99	.995
Two-Sided Test:		$p = .80$	.90	.95	.98	.99
$N_1 = 1$	$N_2 =$ 9	17/18				
	10	9/10				
$N_1 = 2$	$N_2 =$ 3	5/6				
	4	3/4				
	5	4/5	4/5			
	6	5/6	5/6			
	7	5/7	6/7			
	8	3/4	7/8	7/8		
	9	7/9	8/9	8/9		
	10	7/10	4/5	9/10		
$N_1 = 3$	$N_2 =$ 4	3/4	3/4			
	5	2/3	4/5	4/5		
	6	2/3	2/3	5/6		
	7	2/3	5/7	6/7	6/7	
	8	5/8	3/4	3/4	7/8	
	9	2/3	2/3	7/9	8/9	8/9
	10	3/5	7/10	4/5	9/10	9/10
	12	7/12	2/3	3/4	5/6	11/12
$N_1 = 4$	$N_2 =$ 5	3/5	3/4	4/5	4/5	
	6	7/12	2/3	3/4	5/6	5/6
	7	17/28	5/7	3/4	6/7	6/7
	8	5/8	5/8	3/4	7/8	7/8
	9	5/9	2/3	3/4	7/9	8/9
	10	11/20	13/20	7/10	4/5	4/5
	12	7/12	2/3	2/3	3/4	5/6
	16	9/16	5/8	11/16	3/4	13/16
$N_1 = 5$	$N_2 =$ 6	3/5	2/3	2/3	5/6	5/6
	7	4/7	23/35	5/7	29/35	6/7
	8	11/20	5/8	27/40	4/5	4/5
	9	5/9	3/5	31/45	7/9	4/5
	10	1/2	3/5	7/10	7/10	4/5
	15	8/15	3/5	2/3	11/15	11/15
	20	1/2	11/20	3/5	7/10	3/4
$N_1 = 6$	$N_2 =$ 7	23/42	4/7	29/42	5/7	5/6
	8	1/2	7/12	2/3	3/4	3/4
	9	1/2	5/9	2/3	13/18	7/9
	10	1/2	17/30	19/30	7/10	11/15
	12	1/2	7/12	7/12	2/3	3/4
	18	4/9	5/9	11/18	2/3	13/18
	24	11/24	1/2	7/12	5/8	2/3

Table A21 (CONTINUED)

One-Sided Test:		$p = .90$	.95	.975	.99	.995
Two-Sided Test:		$p = .80$	.90	.95	.98	.99
$N_1 = 7$	$N_2 =$ 8	27/56	33/56	5/8	41/56	3/4
	9	31/63	5/9	40/63	5/7	47/63
	10	33/70	39/70	43/70	7/10	5/7
	14	3/7	1/2	4/7	9/14	5/7
	28	3/7	13/28	15/28	17/28	9/14
$N_1 = 8$	$N_2 =$ 9	4/9	13/24	5/8	2/3	3/4
	10	19/40	21/40	23/40	27/40	7/10
	12	11/24	1/2	7/12	5/8	2/3
	16	7/16	1/2	9/16	5/8	5/8
	32	13/32	7/16	1/2	9/16	19/32
$N_1 = 9$	$N_2 =$ 10	7/15	1/2	26/45	2/3	31/45
	12	4/9	1/2	5/9	11/18	2/3
	15	19/45	22/45	8/15	3/5	29/45
	18	7/18	4/9	1/2	5/9	11/18
	36	13/36	5/12	17/36	19/36	5/9
$N_1 = 10$	$N_2 =$ 15	2/5	7/15	1/2	17/30	19/30
	20	2/5	9/20	1/2	11/20	3/5
	40	7/20	2/5	9/20	1/2	
$N_1 = 12$	$N_2 =$ 15	23/60	9/20	1/2	11/20	7/12
	16	3/8	7/16	23/48	13/24	7/12
	18	13/36	5/12	17/36	19/36	5/9
	20	11/30	5/12	7/15	31/60	17/30
$N_1 = 15$	$N_2 = 20$	7/20	2/5	13/30	29/60	31/60
$N_1 = 16$	$N_2 = 20$	27/80	31/80	17/40	19/40	41/80
Large-sample approximation		$1.07\sqrt{\frac{m+n}{mn}}$	$1.22\sqrt{\frac{m+n}{mn}}$	$1.36\sqrt{\frac{m+n}{mn}}$	$1.52\sqrt{\frac{m+n}{mn}}$	$1.63\sqrt{\frac{m+n}{mn}}$

SOURCE. Adapted from Massey (1952), with permission from the Institute of Mathematical Statistics.

[a] The entries in this table are selected quantiles w_p of the Smirnov test statistic T for two samples, defined by Equations 6.3.1, 6.3.2, and 6.3.3. To enter the table let N_1 be the smaller sample size and let N_2 be the larger sample size. Reject H_0 at the level α if T exceeds $w_{1-\alpha}$ as given in the table. If n and m are not covered by this table, use the large sample approximation given at the end of the table, or consult exact tables by Kim and Jennrich, which appear in Harter and Owen (1970) for $n, m \leq 100$.