Critical Values for the Two-sample Kolmogorov-Smirnov test (2-sided)

Table gives critical D-values for $\alpha = 0.05$ (upper value) and $\alpha = 0.01$ (lower value) for various sample sizes. * means you cannot reject H_0 regardless of observed D.

$n_2 \backslash n_1$	3	4	5	6	7	8	9	10	11	12
1	*	*	*	*	*	*	*	*	*	*
	*	*	*	*	*	*	*	*	*	*
2	*	*	*	*	*	16/16	18/18	20/20	22/22	24/24
	*	*	*	*	*	*	*	*	*	*
3	*	*	15/15	18/18	21/21	21/24	24/27	27/30	30/33	30/36
	*	*	*	*	*	24/24	27/27	30/30	33/33	36/36
4		16/16	20/20	20/24	24/28	28/32	28/36	30/40	33/44	36/48
		*	*	24/24	28/28	32/32	32/36	36/40	40/44	44/48
5			*	24/30	30/35	30/40	35/45	40/50	39/55	43/60
			*	30/30	35/35	35/40	40/45	45/50	45/55	50/60
6				30/36	30/42	34/48	39/54	40/60	43/66	48/72
				36/36	36/42	40/48	45/54	48/60	54/66	60/72
7					42/49	40/56	42/63	46/70	48/77	53/84
					42/49	48/56	49/63	53/70	59/77	60/84
8						48/64	46/72	48/80	53/88	60/96
						56/64	55/72	60/80	64/88	68/96
9							54/81	53/90	59/99	63/108
							63/81	70/90	70/99	75/108
10								70/100	60/110	66/120
								80/100	77/110	80/120
11									77/121	72/132
									88/121	86/132
12										96/144
										84/144

For larger sample sizes, the approximate critical value D_α is given by the equation

$$D_\alpha = c(\alpha)\sqrt{\frac{n_1 + n_2}{n_1 n_2}}$$

where the coefficient is given by the table below.

α	0.10	0.05	0.025	0.01	0.005	0.001
$c(\alpha)$	1.22	1.36	1.48	1.63	1.73	1.95

Examples: (1) At $\alpha = 0.05$ and samples sizes 5 and 8, $D_\alpha = 30/40 = 0.75$.

(2) At $\alpha = 0.01$ and samples sizes 15 and 28, $D_\alpha = 1.63\sqrt{\frac{15+28}{15 \cdot 28}} = 0.522$.

TABLE FOR KOLMOGOROV-SMIRNOV ONE-SAMPLE TEST:
CRITICAL VALUES FOR D_{max} STATISTIC

n	$\alpha = 0.20$	$\alpha = 0.10$	$\alpha = 0.05$	$\alpha = 0.02$	$\alpha = 0.01$
1	0,900	0,950	0,975	0,99	0,995
2	0,684	0,776	0,842	0,9	0,929
3	0,565	0,636	0,708	0,785	0,829
4	0,493	0,656	0,624	0,689	0,734
5	0,447	0,509	0,563	0,627	0,669
6	0,410	0,468	0,519	0,577	0,617
7	0,381	0,436	0,483	0,538	0,576
8	0,358	0,41	0,454	0,507	0,542
9	0,339	0,387	0,43	0,48	0,513
10	0,323	0,369	0,409	0,457	0,489
11	0,308	0,352	0,391	0,437	0,468
12	0,296	0,338	0,375	0,419	0,449
13	0,285	0,325	0,361	0,404	0,432
14	0,275	0,314	0,349	0,39	0,418
15	0,266	0,304	0,338	0,377	0,404
16	0,258	0,295	0,327	0,366	0,392
17	0,250	0,286	0,318	0,355	0,381
18	0,244	0,279	0,309	0,346	0,371
19	0,237	0,271	0,301	0,337	0,361
20	0,232	0,265	0,294	0,329	0,352
21	0,226	0,259	0,287	0,321	0,344
22	0,221	0,253	0,281	0,314	0,337
23	0,216	0,247	0,275	0,307	0,33
24	0,212	0,242	0,269	0,301	0,323
25	0,208	0,238	0,264	0,295	0,317
26	0,204	0,233	0,259	0,29	0,311
27	0,200	0,229	0,254	0,284	0,305
28	0,197	0,225	0,25	0,279	0,300
29	0,193	0,221	0,246	0,275	0,295
30	0,19	0,218	0,242	0,270	0,290
31	0,187	0,214	0,238	0,266	0,285
32	0,184	0,211	0,234	0,262	0,281
33	0,182	0,208	0,231	0,258	0,277
34	0,179	0,205	0,227	0,254	0,273
35	0,177	0,202	0,224	0,251	0,269
36	0,174	0,199	0,221	0,247	0,265
37	0,172	0,196	0,218	0,244	0,262
38	0,170	0,194	0,215	0,241	0,258
39	0,168	0,191	0,213	0,238	0,255
40	0,165	0,189	0,210	0,235	0,252
> 40	$1.07/\sqrt{n}$	$1.22/\sqrt{n}$	$1.36/\sqrt{n}$	$1.52/\sqrt{n}$	$1.63/\sqrt{n}$

Compiled and edited by Josemari Sarasola for Gizapedia.

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