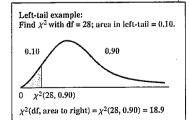
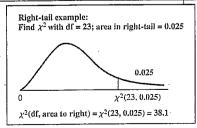
## TABLE WAS A SERVICE

## Critical Values of $\chi^{\rm 2}$ ("Chi-Square") Distribution

The entries in this table,  $\chi^2$  (df,  $\alpha$ ), are the critical values for the  $\chi^2$  distribution for which the area under the curve to the right is  $\alpha$ .

				,								area t	o right	
				Area to the Right					<b></b>		$\chi^2(d)$	$\chi^2(df, area to right)$		
	0.995	0.99	0.975	0.95	0.90	0.75	0.50	0.25	0.10	0.05	0.025	0.01	0.005	
	Area in Left-hand Tail						Median				Area in Right-hand Tail			
df	0.005	0.01	0.025	0.05	0.10	0.25	0.50	0.25	0.10	0.05	0.025	0.01	0.005	
1 2 3 4 5	0.0000393 0.0100 0.0717 0.207 0.412	0.000157 0.0201 0.115 0.297 0.554	0.000982 0.0506 0.216 0.484 0.831	0.00393 0.103 0.352 0.711 1.15	0.0158 0.211 0.584 1.06 1.61	0.101 0.575 1.21 1.92 2.67	0.455 1.39 2.37 3.36 4.35	1.32 2.77 4.11 5.39 6.63	2.71 4.61 6.25 7.78 9.24	3.84 5.99 7.82 9.49 11.1	5.02 7.38 9.35 11.1 12.8	6.63 9.21 11.3 13.3 15.1	7.88 10.6 12.8 14.9 16.8	
6 7 8 9 10	0.676 0.990 1.34 1.73 2.16	0.872 1.24 1.65 2.09 2.56	1.24 1.69 2.18 2.70 3.25	1.64 2.17 2.73 3.33 3.94	2.20 2.83 3.49 4.17 4.87	3.45 4.25 5.07 5.90 6.74	5.35 6.35 7.34 8.34 9.34	7.84 9.04 10.2 11.4 12.5	10.6 12.0 13.4 14.7 16.0	12.6 14.1 15.5 16.9 18.3	14.5 16.0 17.5 19.0 20.5	16.8 18.5 20.1 21.7 23.2	18.6 20.3 22.0 23.6 25.2	
11 12 13 14 15	2.60 3.07 3.57 4.07 4.60	3.05 3.57 4.11 4.66 5.23	3.82 4.40 5.01 5.63 6.26	4.57 5.23 5.89 6.57 7.26	5.58 6.30 7.04 7.79 8.55	7.58 8.44 9.30 10.2 11.0	10.34 11.34 12.34 13.34 14.34	13.7 14.8 16.0 17.1 18.2	17.3 18.5 19.8 21.1 22.3	19.7 21.0 22.4 23.7 25.0	21.9 23.3 24.7 26.1 27.5	24.7 26.2 27.7 29.1 30.6	26.8 28.3 29.8 31.3 32.8	
16 17 18 19 20	5.14 5.70 6.26 6.84 7.43	5.81 6.41 7.01 7.63 8.26	6.91 7.56 8.23 8.91 9.59	7.96 8.67 9.39 10.1 10.9	9.31 10.1 10.9 11.7 12.4	11.9 12.8 13.7 14.6 15.5	15.34 16.34 17.34 18.34 19.34	19.4 20.5 21.6 22.7 23.8	23.5 24.8 26.0 27.2 28.4	26.3 27.6 28.9 30.1 31.4	28.8 30.2 31.5 32.9 34.2	32.0 33.4 34.8 36.2 37.6	34.3 35.7 37.2 38.6 40.0	
21 22 23 24 25	8.03 8.64 9.26 9.89 10.5	8.90 9.54 10.2 10.9 11.5	10.3 11.0 11.7 12.4 13.1	11.6 12.3 13.1 13.8 14.6	13.2 14.0 14.8 15.7 16.5	.16.3 17.2 18.1 19.0 19.9	20.34 21.34 22.34 23.34 24.34	24.9 26.0 27.1 28.2 29.3	29.6 30.8 32.0 33.2 34.4	32.7 33.9 35.2 36.4 37.7	35.5 36.8 38.1 39.4 40.6	38.9 40.3 41.6 43.0 44.3	41.4 42.8 44.2 45.6 46.9	
26 27 28 29 30	11.2 11.8 12.5 13.1 13.8	12.2 12.9 13.6 14.3 15.0	13.8 14.6 15.3 16.0 16.8	15.4 16.2 16.9 17.7 18.5	17.3 18.1 18.9 19.8 20.6	20.8 21.7 22.7 23.6 24.5	25.34 26.34 27.34 28.34 29.34	30.4 31.5 32.6 33.7 34.8	35.6 36.7 37.9 39.1 40.3	38.9 40.1 41.3 42.6 43.8	41.9 43.2 44.5 45.7 47.0	45.6 47.0 48.3 49.6 50.9	48.3 49.6 51.0 52.3 53.7	
40 50 60 70 80	20.7 28.0 35.5 43.3 51.2	22.2 29.7 37.5 45.4 53.5	24.4 32.4 40.5 48.8 57.2	26.5 34.8 43.2 51.7 60.4	29.1 37.7 46.5 55.3 64.3	33.7 42.9 52.3 61.7 71.1 80.6	39.34 49.33 59.33 69.33 79.33 89.33	45.6 56.3 67.0 77.6 88.1 98.6	51.8 63.2 74.4 85.5 96.6 108.0	55.8 67.5 79.1 90.5 102.0 113.0	59.3 71.4 83.3 95.0 107.0 118.0	63.7 76.2 88.4 100.0 112.0 124.0	66.8 79.5 92.0 104.0 116.0 128.0	
90 100	59.2 67.3	61.8 70.1	65.6 74.2	69.1 77.9	73.3 82.4	90.1	99.33	109.0	118.0	124.0	130.0	136.0	140.0	





For specific details about using this table to find: p-values, see pages 521, 522, 524; critical values, pages 517-518, 521, 523.

-value

0.500 0.460 0.421 0.383 0.346 0.310 0.276 0.244 0.214

 $df \ge 45$ 

0.161 0.139 0.118 0.100 0.084 0.070 0.058 0.048

0.186

0.039 0.032 0.026 0.021 0.016 0.013 0.010

0.008 0.006 0.005 0.004 0.003 0.002

0.002 0.001 0.001 0.001

0.001 0+ 0+

0+ 0+