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## TABLES FOR THE TWO-SAMPLE MEDIAN TEST

ZBYNĚK ŠIDÁK

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**Summary.** The paper contains tables for the non-parametric median test for two samples whose sizes  $m, n$  satisfy  $3 \leq m \leq n, m + n \leq 41$ . We tabulate the probabilities of the upper tail of the distribution up to the point where 10% is exceeded for the first time.

**Description of the test.** Let us have two random samples  $X_1, \dots, X_m$  and  $Y_1, \dots, Y_n$  with densities  $f_1$  and  $f_2$ , respectively, and suppose that the notation is chosen so that  $m \leq n$ . Our aim is to test the hypothesis  $H_0$  that  $f_1$  and  $f_2$  are identical but otherwise arbitrary against the alternatives of shift in location expressed by  $f_1(x) = f(x - \Delta), f_2(x) = f(x)$ , where  $\Delta > 0$ , or  $\Delta < 0$  (one-sided alternatives), or  $\Delta \neq 0$  (two-sided alternative).

The median test is performed very easily. First, we pool both samples and find the median of this pooled sample. (Since we assume the existence of densities, with probability 1 all the sample values are distinct and the median is defined uniquely.) More formally, if we put  $X_{m+1} = Y_1, \dots, X_{m+n} = Y_n$ , and if  $X^{(1)} < X^{(2)} < \dots < X^{(m+n)}$  are the values of the pooled sample  $X_1, \dots, X_m, X_{m+1}, \dots, X_{m+n}$  arranged in the order of their magnitude, then the median is  $X^{((m+n+1)/2)}$  for  $m+n$  odd, and  $\frac{1}{2}[X^{((m+n)/2)} + X^{((m+n)/2+1)}]$  for  $m+n$  even. The test statistic  $S$  of our median test is then equal to the number of the values  $X_i, i = 1, \dots, m$ , exceeding this median, increased in addition by 0.5 if and only if  $m+n$  is odd and the median coincides with some value  $X_i, i = 1, \dots, m$ .

In a concise mathematical formula, we can write  $S = \sum_{i=1}^m a_{m+n}(R_i)$ , where  $R_i$  is the rank of  $X_i$  in the pooled sample  $X_1, \dots, X_m, X_{m+1}, \dots, X_{m+n}$ , and the scores  $a_{m+n}$  are given by  $a_{m+n}(j) = \frac{1}{2}[\text{sign}(j - \frac{1}{2}(m+n+1)) + 1]$  for  $j = 1, \dots, m+n$ .

We may note that the median test is asymptotically optimum (in the class of all tests) for the above-mentioned two-sample problem of shift in location, if  $f$  is of the double-exponential type, i.e. if  $f(x) = (2\sigma)^{-1} e^{-|x-\mu|/\sigma}$  (cf. Hájek-Šidák [1], Section III.1.1).

**Description of the table.** Table 1 should be read one double-column after the other, and we tabulate here the upper tails of the distribution of the statistic  $S$ , under  $H_0$ , for all pairs  $m, n$  such that  $3 \leq m \leq n, m + n \leq 41$ . In each double-column, following the heading  $m, n$ , the left column shows possible critical values  $c_\alpha$  of  $S$ , while the right column shows the corresponding one-sided significance levels  $\alpha = 100P\{S \geq c_\alpha\}$  (i.e. in per cents) rounded off to three decimal places. The tabulation begins by the largest  $c_\alpha$  for which the corresponding  $\alpha$  (rounded off to three decimal places) is  $> 0.000$ , and continues with all possible consecutive values  $c_\alpha$  of  $S$  until such  $c_\alpha$  is reached for which the corresponding  $\alpha$  exceeds for the first time 10.000%.

For the computation of Table 1 we used the formula

$$P\{S = k\} = \binom{[\frac{1}{2}(m+n)]}{[k]} \binom{[\frac{1}{2}(m+n)]}{[m-k]} \binom{m+n}{m}^{-1}$$

(where  $[x]$  denotes the largest integer not exceeding  $x$ ), valid for  $k = 0, 1, \dots, m$  whenever  $m+n$  is even) and for  $k = 0, \frac{1}{2}, \dots, m - \frac{1}{2}, m$  whenever  $m+n$  is odd. (Cf. Hájek-Šidák [1], Theorem IV. 2.1.a.) The present author is deeply indebted to M. Nosál for programming the computation.

It may be observed further, that the distribution (under  $H_0$ ) of  $S$  is symmetric about its mean value  $ES = \frac{1}{2}m$ , and its variance is

$$\begin{aligned} \text{var } S &= mn/[4(m+n-1)] \quad \text{for } m+n \text{ even,} \\ &= mn/[4(m+n)] \quad \text{for } m+n \text{ odd.} \end{aligned}$$

If we are testing  $H_0$  against the one-sided alternative  $\Delta > 0$  (i.e.  $f_1$  is shifted to the right with respect to  $f_2$ ), we use the critical region  $\{S \geq c_\alpha\}$  and the corresponding significance level is the tabulated  $\alpha$ . If we are testing against  $\Delta < 0$  (i.e.  $f_1$  is shifted to the left), we use the critical region  $\{S \leq m - c_\alpha\}$  whose significance level is again  $\alpha$ . If we are testing against the two-sided alternative  $\Delta \neq 0$ , we use the critical region  $\{S \geq c_\alpha \text{ or } S \leq m - c_\alpha\}$  whose significance level is equal to  $2\alpha$ .

**Example.** Let one sample contain the values 81; 105; 33; 78; 126; 61; 88, the other sample the values 32; 83; 50; 59; 10; 45. For the application of our table we must have  $m \leq n$ , therefore the latter sample must be denoted as  $X_1, \dots, X_6$ , and the former sample as  $Y_1, \dots, Y_7$ . The median of the pooled sample is 61. The number of the values  $X_i$  exceeding 61 is 1;  $m+n$  is odd but the median is one of the values  $Y_j$ , so that we shall not add the number 0.5. Therefore  $S = 1$ . In Table 1 we find for  $m = 6, n = 7, c_\alpha = 5.0$  the one-sided significance level  $\alpha = 2.506\%$ . If we are testing against the one-sided alternative  $\Delta < 0$ , we use the critical region  $\{S \leq 6 - 5\} = \{S \leq 1\}$  so that  $H_0$  may be rejected at the level  $\alpha = 2.506\%$ . If we are testing against the two-sided alternative  $\Delta \neq 0$ , we use the critical region  $\{S \geq 5 \text{ or } S \leq 1\}$  so that  $H_0$  may be rejected at the level  $2\alpha = 5.012\%$ .

**Remark on asymptotic normality.** For large sizes  $m, n$  we may use the normal approximation, since the standardized test statistic  $(S - ES)/(\text{var } S)^{1/2}$  has (under  $H_0$ ) asymptotically the standardized normal distribution whenever  $m \rightarrow \infty, n \rightarrow \infty$  in an arbitrary manner (cf. Hájek-Šidák [1], Section III.1.1).

**Remark on ties.** In practice, equal observations sometimes occur in the samples. In this case, we may use e.g. the following “method of average scores” (cf. Hájek-Šidák [1], Section III.8.1). First, in each group of equal observations, the observations are arranged in some auxiliary ordering, and the median is then found as usually. The only trouble in calculating the value of  $S$  arises with the group of observations that are equal to the median; this group will be called the median group, and let it contain  $a$  values  $X_i$ , and  $b$  values  $Y_j$ . Further, in our auxiliary ordering, let the median group contain  $r$  values preceding the median, and  $s$  values exceeding the median.

If  $m + n$  is even, the median group has  $a + b = r + s$  values, and the average score in it is  $(r \cdot 0 + s \cdot 1)/(r + s)$ ; hence  $S$  equals the number of  $X_i$ 's larger than the median, plus  $as/(r + s)$ .

If  $m + n$  is odd, the median group has  $a + b = r + s + 1$  values, and the average score in it is  $(r \cdot 0 + \frac{1}{2} + s \cdot 1)/(r + s + 1)$ ; hence  $S$  equals the number of  $X_i$ 's larger than the median, plus  $a(s + \frac{1}{2})/(r + s + 1)$ .

If the median group does not contain too many observations, we can still use our Table 1 as an approximation.

**Remark on related tests.** Several closely related tests have been introduced in the past under the name “median test”. E.g. many authors define the “median test” statistic  $S_0$  simply as the number of  $X_i$ 's larger than the median of the pooled sample (without possible adding  $\frac{1}{2}$ ); however, the distribution of  $S_0$  for  $m + n$  odd is not symmetric. In the book [1] and in the present tables we have preferred the statistic  $S$  defined above, because the calculation of  $S$  is practically not more difficult than that of  $S_0$  but  $S$  has two advantages: its distribution is always symmetric, and it offers, for  $m + n$  odd, a richer choice of possible significance levels.

Still some other forms of the “median test” statistic have been employed, e.g. those arising from the expression of the problem as a  $2 \times 2$  contingency table, or the statistic being equal to the number of  $X_i$ 's exceeding the median of  $Y_j$ 's (cf. Hájek-Šidák [1], Section III.1.1).

#### *Reference*

[1] J. Hájek, Z. Šidák: Theory of rank tests. Academia, Prague & Academic Press, New York — London 1967.

Table 1. Critical values  $c_{\alpha}$  of the median test statistic  $S$  and significance levels  $100 P \{S \geq c_{\alpha}\}$  (i.e. in per cents)

$m = 3, n = 3$ 3.0 5.000 2.0 50.000	$m = 3, n = 16$ 3.0 8.669 2.5 12.384	$m = 3, n = 32$ 3.0 10.390	$m = 4, n = 11$ 4.0 2.564 3.5 5.128 3.0 23.077
$m = 3, n = 4$ 3.0 2.857 2.5 11.429	$m = 3, n = 17$ 3.0 10.526	$m = 3, n = 33$ 3.0 11.429	$m = 4, n = 12$ 4.0 3.846 3.0 28.462
$m = 3, n = 5$ 3.0 7.143 2.0 50.000	$m = 3, n = 18$ 3.0 9.023 2.5 12.406	$m = 3, n = 34$ 3.0 10.502	$m = 4, n = 13$ 4.0 2.941 3.5 5.294 3.0 24.118
$m = 3, n = 6$ 3.0 4.762 2.5 11.905	$m = 3, n = 19$ 3.0 10.714	$m = 3, n = 36$ 3.0 10.603	$m = 4, n = 14$ 4.0 4.118 3.0 28.824
$m = 3, n = 7$ 3.0 8.333 2.0 50.000	$m = 3, n = 20$ 3.0 9.317 2.5 12.422	$m = 3, n = 37$ 3.0 11.538	$m = 4, n = 15$ 4.0 3.251 3.5 5.418 3.0 24.923
$m = 3, n = 8$ 3.0 6.061 2.5 12.121	$m = 3, n = 21$ 3.0 10.870	$m = 3, n = 38$ 3.0 10.694	$m = 4, n = 16$ 4.0 4.334 3.0 29.102
$m = 3, n = 9$ 3.0 9.091 2.0 50.000	$m = 3, n = 22$ 3.0 9.565 2.5 12.435	$m = 4, n = 4$ 4.0 1.429 3.0 24.286	$m = 4, n = 17$ 4.0 3.509 3.5 5.514 3.0 25.564
$m = 3, n = 10$ 3.0 6.993 2.5 12.238	$m = 3, n = 23$ 3.0 11.000	$m = 4, n = 5$ 4.0 0.794 3.5 3.968 3.0 16.667	$m = 4, n = 18$ 4.0 4.511 3.0 29.323
$m = 3, n = 11$ 3.0 9.615 2.0 50.000	$m = 3, n = 24$ 3.0 9.778 2.5 12.444	$m = 4, n = 6$ 4.0 2.381 3.0 26.190	$m = 4, n = 19$ 4.0 3.727 3.5 5.590 3.0 26.087
$m = 3, n = 12$ 3.0 7.692 2.5 12.308	$m = 3, n = 25$ 3.0 11.111	$m = 4, n = 7$ 4.0 1.515 3.5 4.545 3.0 19.697	$m = 4, n = 20$ 4.0 4.658 3.0 29.503
$m = 3, n = 13$ 3.0 10.000 2.0 50.000	$m = 3, n = 26$ 3.0 9.962 2.5 12.452	$m = 4, n = 8$ 4.0 3.030 3.0 27.273	$m = 4, n = 21$ 4.0 3.913 3.5 5.652 3.0 26.522
$m = 3, n = 14$ 3.0 8.235 2.5 12.353	$m = 3, n = 27$ 3.0 11.207	$m = 4, n = 9$ 4.0 2.098 3.5 4.895 3.0 21.678	
$m = 3, n = 15$ 3.0 10.294	$m = 3, n = 28$ 3.0 10.122	$m = 4, n = 10$ 4.0 3.497 3.0 27.972	
	$m = 3, n = 29$ 3.0 11.290		
	$m = 3, n = 30$ 3.0 10.264		
	$m = 3, n = 31$ 3.0 11.364		

$m = 4, n = 22$ 4-0 4-783 3-0 29-652	$m = 4, n = 34$ 4-0 5-251 3-0 30-193	$m = 5, n = 12$ 5-0 0-905 4-5 2-036 4-0 11-086	$m = 5, n = 24$ 5-0 1-686 4-5 2-529 4-0 14-330
$m = 4, n = 23$ 4-0 4-074 3-5 5-704 3-0 26-889	$m = 4, n = 35$ 4-0 4-712 3-5 5-891 3-0 28-274	$m = 5, n = 13$ 5-0 1-471 4-0 14-706	$m = 5, n = 25$ 5-0 2-107 4-0 16-475
$m = 4, n = 24$ 4-0 4-889 3-0 29-778	$m = 4, n = 36$ 4-0 5-301 3-0 30-249	$m = 5, n = 14$ 5-0 1-084 4-5 2-167 4-0 11-920	$m = 5, n = 26$ 5-0 1-767 4-5 2-571 4-0 14-621
$m = 4, n = 25$ 4-0 4-215 3-5 5-747 3-0 27-203	$m = 4, n = 37$ 4-0 4-784 3-5 5-910 3-0 28-424	$m = 5, n = 15$ 5-0 1-625 4-0 15-170	$m = 5, n = 27$ 5-0 2-169 4-0 16-630
$m = 4, n = 26$ 4-0 4-981 3-0 29-885	$m = 5, n = 5$ 5-0 0-397 4-0 10-317	$m = 5, n = 16$ 5-0 1-238 4-5 2-270 4-0 12-590	$m = 5, n = 28$ 5-0 1-840 4-5 2-607 4-0 14-877
$m = 4, n = 27$ 4-0 4-338 3-5 5-784 3-0 27-475	$m = 5, n = 6$ 5-0 0-216 4-5 1-299 4-0 6-710 3-5 17-532	$m = 5, n = 17$ 5-0 1-754 4-0 15-539	$m = 5, n = 29$ 5-0 2-224 4-0 16-764
$m = 4, n = 28$ 4-0 5-061 3-0 29-978	$m = 5, n = 7$ 5-0 0-758 4-0 12-121	$m = 5, n = 18$ 5-0 1-373 4-5 2-354 4-0 13-142	$m = 5, n = 30$ 5-0 1-906 4-5 2-639 4-0 15-103
$m = 4, n = 29$ 4-0 4-448 3-5 5-816 3-0 27-713	$m = 5, n = 8$ 5-0 0-466 4-5 1-632 4-0 8-625 3-5 17-949	$m = 5, n = 19$ 5-0 1-863 4-0 15-839	$m = 5, n = 31$ 5-0 2-273 4-0 16-883
$m = 4, n = 30$ 4-0 5-132 3-0 30-059	$m = 5, n = 9$ 5-0 1-049 4-0 13-287	$m = 5, n = 20$ 5-0 1-491 4-5 2-422 4-0 13-602	$m = 5, n = 32$ 5-0 1-966 4-5 2-668 4-0 15-304
$m = 4, n = 31$ 4-0 4-545 3-5 5-844 3-0 27-922	$m = 5, n = 10$ 5-0 0-699 4-5 1-865 4-0 10-023	$m = 5, n = 21$ 5-0 1-957 4-0 16-087	$m = 5, n = 33$ 5-0 2-317 4-0 16-988
$m = 4, n = 32$ 4-0 5-195 3-0 30-130	$m = 5, n = 11$ 5-0 1-282 4-0 14-103	$m = 5, n = 22$ 5-0 1-594 4-5 2-480 4-0 13-994	$m = 5, n = 34$ 5-0 2-020 4-5 2-693 4-0 15-484
$m = 4, n = 33$ 4-0 4-633 3-5 5-869 3-0 28-108		$m = 5, n = 23$ 5-0 2-037 4-0 16-296	$m = 5, n = 35$ 5-0 2-356 4-0 17-082

$m = 5, n = 36$ 5.0 2.069 4.5 2.715 4.0 15.646	$m = 6, n = 14$ 6.0 0.542 5.0 7.043 4.0 31.424	$m = 6, n = 23$ 6.0 0.632 5.5 1.054 5.0 6.954 4.5 9.904 4.0 29.080	$m = 6, n = 32$ 6.0 0.983 5.0 8.986 4.0 32.994
$m = 6, n = 6$ 6.0 0.108 5.0 4.004 4.0 28.355	$m = 6, n = 15$ 6.0 0.387 5.5 0.851 5.0 5.495 4.5 9.365 4.0 26.780	$m = 6, n = 24$ 6.0 0.843 5.0 8.429 4.0 32.567	$m = 6, n = 33$ 6.0 0.832 5.5 1.188 5.0 7.960 4.5 10.217
$m = 6, n = 7$ 6.0 0.058 5.5 0.408 5.0 2.506 4.5 7.751 4.0 20.862	$m = 6, n = 16$ 6.0 0.619 5.0 7.430 4.0 31.756	$m = 6, n = 25$ 6.0 0.680 5.5 1.088 5.0 7.206 4.5 9.986 4.0 29.452	$m = 6, n = 34$ 6.0 1.010 5.0 9.088 4.0 33.071
$m = 6, n = 8$ 6.0 0.233 5.0 5.128 4.0 29.604	$m = 6, n = 17$ 6.0 0.458 5.5 0.915 5.0 5.950 4.5 9.546 4.0 27.525	$m = 6, n = 26$ 6.0 0.884 5.0 8.596 4.0 32.697	$m = 6, n = 35$ 6.0 0.862 5.5 1.207 5.0 8.103 4.5 10.258
$m = 6, n = 9$ 6.0 0.140 5.5 0.559 5.0 3.497 4.5 8.392 4.0 23.077	$m = 6, n = 18$ 6.0 0.686 5.0 7.748 4.0 32.020	$m = 6, n = 27$ 6.0 0.723 5.5 1.117 5.0 7.427 4.5 10.057	$m = 7, n = 7$ 7.0 0.029 6.0 1.457 5.0 14.307
$m = 6, n = 10$ 6.0 0.350 5.0 5.944 4.0 30.420	$m = 6, n = 19$ 6.0 0.522 5.5 0.969 5.0 6.335 4.5 9.689 4.0 28.137	$m = 6, n = 28$ 6.0 0.920 5.0 8.742 4.0 32.809	$m = 7, n = 8$ 7.0 0.016 6.5 0.124 6.0 0.886 5.5 3.170 5.0 10.023
$m = 6, n = 11$ 6.0 0.226 5.5 0.679 5.0 4.299 4.5 8.824 4.0 24.661	$m = 6, n = 20$ 6.0 0.745 5.0 8.012 4.0 32.236	$m = 6, n = 29$ 6.0 0.762 5.5 1.144 5.0 7.625 4.5 10.117	$m = 7, n = 9$ 7.0 0.070 6.0 2.028 5.0 15.734
$m = 6, n = 12$ 6.0 0.452 5.0 6.561 4.0 30.995	$m = 6, n = 21$ 6.0 0.580 5.5 1.014 5.0 6.667 4.5 9.807 4.0 28.647	$m = 6, n = 30$ 6.0 0.953 5.0 8.871 4.0 32.907	$m = 7, n = 10$ 7.0 0.041 6.5 0.185 6.0 1.337 5.5 3.640 5.0 11.703
$m = 6, n = 13$ 6.0 0.310 5.5 0.774 5.0 4.954 4.5 9.133 4.0 25.851	$m = 6, n = 22$ 6.0 0.797 5.0 8.237 4.0 32.415	$m = 6, n = 31$ 6.0 0.799 5.5 1.167 5.0 7.801 4.5 10.170	$m = 7, n = 11$ 7.0 0.113 6.0 2.489 5.0 16.742

$m = 7, n = 12$ 7.0 0.071 6.5 0.238 6.0 1.739 5.5 3.989 5.0 12.991	$m = 7, n = 21$ 7.0 0.290 6.0 3.841 5.0 19.227	$m = 7, n = 30$ 7.0 0.309 6.5 0.489 6.0 3.735 5.5 5.233 5.0 17.966	$m = 8, n = 11$ 8.0 0.012 7.5 0.060 7.0 0.488 6.5 1.488 6.0 5.489 5.5 11.491
$m = 7, n = 13$ 7.0 0.155 6.0 2.864 5.0 17.492	$m = 7, n = 22$ 7.0 0.220 6.5 0.412 6.0 3.106 5.5 4.902 5.0 16.574	$m = 7, n = 31$ 7.0 0.399 6.0 4.484 5.0 20.240	$m = 8, n = 12$ 8.0 0.036 7.0 0.988 6.0 8.490 5.0 32.496
$m = 7, n = 14$ 7.0 0.103 6.5 0.284 6.0 2.090 5.5 4.257 5.0 14.009	$m = 7, n = 23$ 7.0 0.316 6.0 4.004 5.0 19.492	$m = 7, n = 32$ 7.0 0.328 6.5 0.504 6.0 3.856 5.5 5.292 5.0 18.220	$m = 8, n = 13$ 8.0 0.022 7.5 0.081 7.0 0.671 6.5 1.703 6.0 6.347 5.5 11.920
$m = 7, n = 15$ 7.0 0.193 6.0 3.173 5.0 18.073	$m = 7, n = 24$ 7.0 0.245 6.5 0.435 6.0 3.290 5.5 5.003 5.0 16.994	$m = 7, n = 33$ 7.0 0.416 6.0 4.574 5.0 20.374	$m = 8, n = 14$ 8.0 0.052 7.0 1.187 6.0 9.133 5.0 32.972
$m = 7, n = 16$ 7.0 0.135 6.5 0.323 6.0 2.396 5.5 4.469 5.0 14.834	$m = 7, n = 25$ 7.0 0.340 6.0 4.147 5.0 19.719	$m = 7, n = 34$ 7.0 0.345 6.5 0.517 6.0 3.965 5.5 5.345 5.0 18.447	$m = 8, n = 15$ 8.0 0.034 7.5 0.101 7.0 0.841 6.5 1.878 6.0 7.060 5.5 12.243
$m = 7, n = 17$ 7.0 0.229 6.0 3.432 5.0 18.535	$m = 7, n = 26$ 7.0 0.268 6.5 0.455 6.0 3.454 5.5 5.090 5.0 17.360	$m = 8, n = 8$ 8.0 0.008 7.0 0.505 6.0 6.597 5.0 30.963	$m = 8, n = 16$ 8.0 0.067 7.0 1.360 6.0 9.651 5.0 33.342
$m = 7, n = 18$ 7.0 0.165 6.5 0.357 6.0 2.664 5.5 4.641 5.0 15.515	$m = 7, n = 27$ 7.0 0.362 6.0 4.272 5.0 19.916	$m = 8, n = 9$ 8.0 0.004 7.5 0.037 7.0 0.300 6.5 1.222 6.0 4.447 5.5 10.897	$m = 8, n = 17$ 8.0 0.046 7.5 0.119 7.0 0.998 6.5 2.023 6.0 7.661 5.5 12.494
$m = 7, n = 19$ 7.0 0.261 6.0 3.652 5.0 18.913	$m = 7, n = 28$ 7.0 0.289 6.5 0.473 6.0 3.602 5.5 5.166 5.0 17.681	$m = 8, n = 10$ 8.0 0.021 7.0 0.761 6.0 7.672 5.0 31.859	
$m = 7, n = 20$ 7.0 0.193 6.5 0.386 6.0 2.899 5.5 4.783 5.0 16.087	$m = 7, n = 29$ 7.0 0.381 6.0 4.384 5.0 20.088		



$m = 8, n = 18$ 8.0 0.082 7.0 1.510 6.0 10.078	$m = 8, n = 26$ 8.0 0.134 7.0 1.955 6.0 11.225	$m = 9, n = 9$ 9.0 0.002 8.0 0.169 7.0 2.834 6.0 17.347	$m = 9, n = 16$ 9.0 0.011 8.5 0.035 8.0 0.326 7.5 0.791 7.0 3.350 6.5 6.335 6.0 16.285
$m = 8, n = 19$ 8.0 0.058 7.5 0.135 7.0 1.140 6.5 2.145 6.0 8.174 5.5 12.696	$m = 8, n = 27$ 8.0 0.103 7.5 0.186 7.0 1.591 6.5 2.485 6.0 9.636 5.5 13.212	$m = 9, n = 10$ 9.0 0.001 8.5 0.011 8.0 0.099 7.5 0.449 7.0 1.852 6.5 5.126 6.0 12.764	$m = 9, n = 17$ 9.0 0.023 8.0 0.558 7.0 4.842 6.0 20.549
$m = 8, n = 20$ 8.0 0.097 7.0 1.643 6.0 10.435	$m = 8, n = 28$ 8.0 0.145 7.0 2.038 6.0 11.424	$m = 9, n = 11$ 9.0 0.006 8.0 0.274 7.0 3.489 6.0 18.492	$m = 9, n = 18$ 9.0 0.015 8.5 0.043 8.0 0.400 7.5 0.876 7.0 3.732 6.5 6.587 6.0 17.059
$m = 8, n = 21$ 8.0 0.070 7.5 0.150 7.0 1.269 6.5 2.249 6.0 8.616 5.5 12.860	$m = 8, n = 29$ 8.0 0.113 7.5 0.196 7.0 1.679 6.5 2.545 6.0 9.902 5.5 13.297	$m = 9, n = 12$ 9.0 0.003 8.5 0.019 8.0 0.172 7.5 0.580 7.0 2.417 6.5 5.632 6.0 14.206	$m = 9, n = 19$ 9.0 0.029 8.0 0.638 7.0 5.159 6.0 20.986
$m = 8, n = 22$ 8.0 0.110 7.0 1.759 6.0 10.738	$m = 8, n = 30$ 8.0 0.155 7.0 2.112 6.0 11.599	$m = 9, n = 13$ 9.0 0.011 8.0 0.376 7.0 4.025 6.0 19.350	$m = 9, n = 20$ 9.0 0.020 8.5 0.050 8.0 0.470 7.5 0.950 7.0 4.068 6.5 6.797 6.0 17.711
$m = 8, n = 23$ 8.0 0.082 7.5 0.163 7.0 1.387 6.5 2.338 6.0 9.000 5.5 12.997	$m = 8, n = 31$ 8.0 0.123 7.5 0.205 7.0 1.761 6.5 2.599 6.0 10.140	$m = 9, n = 14$ 9.0 0.007 8.5 0.027 8.0 0.249 7.5 0.693 7.0 2.914 6.5 6.024 6.0 15.352	$m = 9, n = 21$ 9.0 0.035 8.0 0.710 7.0 5.432 6.0 21.349
$m = 8, n = 24$ 8.0 0.122 7.0 1.863 6.0 10.999	$m = 8, n = 32$ 8.0 0.164 7.0 2.180 6.0 11.756	$m = 9, n = 15$ 9.0 0.017 8.0 0.471 7.0 4.469 6.0 20.016	$m = 9, n = 22$ 9.0 0.025 8.5 0.057 8.0 0.536 7.5 1.014 7.0 4.366 6.5 6.973 6.0 18.269
$m = 8, n = 25$ 8.0 0.093 7.5 0.175 7.0 1.493 6.5 2.416 6.0 9.338 5.5 13.113	$m = 8, n = 33$ 8.0 0.132 7.5 0.213 7.0 1.836 6.5 2.647 6.0 10.354		

$m = 9, n = 23$ 9.0 0.041 8.0 0.775 7.0 5.669 6.0 21.657	$m = 9, n = 30$ 9.0 0.044 8.5 0.079 8.0 0.757 7.5 1.209 7.0 5.275 6.5 7.464 6.0 19.870	8.0 1.011 7.5 2.597 7.0 7.356 6.5 14.019	$m = 10, n = 20$ 10.0 0.010 9.0 0.260 8.0 2.509 7.0 12.254
$m = 9, n = 24$ 9.0 0.030 8.5 0.063 8.0 0.597 7.5 1.072 7.0 4.631 6.5 7.123 6.0 18.750	$m = 9, n = 31$ 9.0 0.061 8.0 0.983 7.0 6.369 6.0 22.529	$m = 10, n = 14$ 10.0 0.003 9.0 0.138 8.0 1.804 7.0 10.688	$m = 10, n = 21$ 10.0 0.007 9.5 0.018 9.0 0.187 8.5 0.405 8.0 1.928 7.5 3.452 7.0 10.053
$m = 9, n = 25$ 9.0 0.046 8.0 0.834 7.0 5.877 6.0 21.922	$m = 9, n = 32$ 9.0 0.048 8.5 0.084 8.0 0.803 7.5 1.246 7.0 5.450 6.5 7.552 6.0 20.164	$m = 10, n = 15$ 10.0 0.002 9.5 0.009 9.0 0.090 8.5 0.271 8.0 1.271 7.5 2.870 7.0 8.200 6.5 14.419	$m = 10, n = 22$ 10.0 0.012 9.0 0.296 8.0 2.690 7.0 12.621
$m = 9, n = 26$ 9.0 0.034 8.5 0.069 8.0 0.654 7.5 1.122 7.0 4.868 6.5 7.252 6.0 19.171	$m = 10, n = 10$ 10.0 0.001 9.0 0.055 8.0 1.151 7.0 8.945 6.0 32.814	$m = 10, n = 16$ 10.0 0.005 9.0 0.180 8.0 2.070 7.0 11.310	$m = 10, n = 23$ 10.0 0.009 9.5 0.021 9.0 0.219 8.5 0.441 8.0 2.110 7.5 3.593 7.0 10.514
$m = 9, n = 27$ 9.0 0.052 8.0 0.888 7.0 6.060 6.0 22.151	$m = 10, n = 11$ 9.5 0.003 9.0 0.031 8.5 0.159 8.0 0.733 7.5 2.264 7.0 6.347 6.5 13.491	$m = 10, n = 17$ 10.0 0.003 9.5 0.012 9.0 0.122 8.5 0.320 8.0 1.510 7.5 3.097 7.0 8.914 6.5 14.732	$m = 10, n = 24$ 10.0 0.015 9.0 0.330 8.0 2.851 7.0 12.937
$m = 9, n = 28$ 9.0 0.039 8.5 0.074 8.0 0.707 7.5 1.168 7.0 5.082 6.5 7.365 6.0 19.542	$m = 10, n = 12$ 10.0 0.002 9.0 0.095 8.0 1.499 7.0 9.919 6.0 33.496	$m = 10, n = 18$ 10.0 0.008 9.0 0.221 8.0 2.304 7.0 11.823	$m = 10, n = 25$ 10.0 0.011 9.5 0.024 9.0 0.249 8.5 0.474 8.0 2.275 7.5 3.716 7.0 10.920
$m = 9, n = 29$ 9.0 0.057 8.0 0.938 7.0 6.223 6.0 22.352	$m = 10, n = 13$ 10.0 0.001 9.5 0.006 9.0 0.059 8.5 0.217	$m = 10, n = 19$ 10.0 0.005 9.5 0.015 9.0 0.155 8.5 0.365 8.0 1.729 7.5 3.288 7.0 9.525 6.5 14.983	$m = 10, n = 26$ 10.0 0.017 9.0 0.362 8.0 2.995 7.0 13.212

$m = 10, n = 27$	8.0 2.963 7.5 6.990 7.0 15.044	8.5 1.442 8.0 4.601 7.5 8.212 7.0 18.142	10.0 0.087 9.5 0.186 9.0 0.978 8.5 1.771 8.0 5.733 7.5 8.902 7.0 19.996
$m = 10, n = 28$	$m = 11, n = 13$ 10.0 0.032 9.0 0.614 8.0 4.977 7.0 20.682	$m = 11, n = 19$ 11.0 0.002 10.0 0.085 9.0 1.047 8.0 6.407 7.0 22.486	$m = 11, n = 25$ 11.0 0.005 10.0 0.136 9.0 1.375 8.0 7.318 7.0 23.526
$m = 10, n = 29$	$m = 11, n = 14$ 10.5 0.002 10.0 0.020 9.5 0.079 9.0 0.404 8.5 1.137 8.0 3.581 7.5 7.490 7.0 16.285	$m = 11, n = 21$ 11.0 0.003 10.0 0.103 9.0 1.167 8.0 6.753 7.0 22.890	$m = 11, n = 26$ 11.0 0.004 10.5 0.009 10.0 0.101 9.5 0.203 9.0 1.073 8.5 1.856 8.0 6.033 7.5 9.070 7.0 20.460
$m = 10, n = 30$	$m = 11, n = 15$ 11.0 0.001 10.0 0.049 9.0 0.771 8.0 5.535 7.0 21.415	$m = 11, n = 22$ 11.0 0.002 10.5 0.006 10.0 0.073 9.5 0.167 9.0 0.876 8.5 1.674 8.0 5.398 7.5 8.709 7.0 19.467	$m = 11, n = 27$ 11.0 0.006 10.0 0.152 9.0 1.465 8.0 7.551 7.0 23.782
$m = 10, n = 31$	$m = 11, n = 16$ 11.0 0.001 10.5 0.003 10.0 0.031 9.5 0.103 9.0 0.530 8.5 1.300 8.0 4.123 7.5 7.888 7.0 17.298	$m = 11, n = 23$ 11.0 0.004 10.0 0.120 9.0 1.275 8.0 7.054 7.0 23.232	$m = 11, n = 28$ 11.0 0.005 10.5 0.010 10.0 0.115 9.5 0.219 9.0 1.162 8.5 1.933 8.0 6.303 7.5 9.216 7.0 20.869
$m = 11, n = 11$	$m = 11, n = 17$ 11.0 0.002 10.0 0.067 9.0 0.915 8.0 6.006 7.0 22.004	$m = 11, n = 24$ 11.0 0.003 10.5 0.008	$m = 11, n = 29$ 11.0 0.007 10.0 0.167 9.0 1.548 8.0 7.759 7.0 24.006
$m = 11, n = 12$	$m = 11, n = 18$ 11.0 0.001 10.5 0.004 10.0 0.044 9.5 0.125 9.0 0.652		

$m = 11, n = 30$ 11·0 0·005 10·5 0·011 10·0 0·128 9·5 0·234 9·0 1·244 8·5 2·002 8·0 6·547 7·5 9·344 7·0 21·232	$m = 12, n = 17$ 11·5 0·001 11·0 0·011 10·5 0·038 10·0 0·213 9·5 0·564 9·0 1·968 8·5 4·075 8·0 9·867 7·5 16·487	$m = 12, n = 23$ 12·0 0·001 11·5 0·002 11·0 0·027 10·5 0·067 10·0 0·384 9·5 0·780 9·0 2·761 8·5 4·742 8·0 11·676	$m = 12, n = 29$ 12·0 0·002 11·5 0·004 11·0 0·046 10·5 0·093 10·0 0·537 9·5 0·941 9·0 3·366 8·5 5·184 8·0 12·911
$m = 12, n = 12$ 11·0 0·005 10·0 0·166 9·0 1·956 8·0 11·017	$m = 12, n = 18$ 12·0 0·001 11·0 0·024 10·0 0·389 9·0 3·022 8·0 13·177	$m = 12, n = 24$ 12·0 0·001 11·0 0·047 10·0 0·582 9·0 3·752 8·0 14·449	$m = 13, n = 13$ 12·0 0·002 11·0 0·060 10·0 0·847 9·0 5·762 8·0 21·688
$m = 12, n = 13$ 11·0 0·003 10·5 0·018 10·0 0·102 9·5 0·381 9·0 1·312 8·5 3·406 8·0 8·118 7·5 15·657	$m = 12, n = 19$ 11·5 0·001 11·0 0·016 10·5 0·048 10·0 0·271 9·5 0·644 9·0 2·257 8·5 4·332 8·0 10·556	$m = 12, n = 25$ 12·0 0·001 11·5 0·003 11·0 0·034 10·5 0·076 10·0 0·438 9·5 0·839 9·0 2·981 8·5 4·908 8·0 12·136	$m = 13, n = 14$ 12·0 0·001 11·5 0·006 11·0 0·036 10·5 0·148 10·0 0·555 9·5 1·575 9·0 4·123 8·5 8·711 8·0 16·969
$m = 12, n = 14$ 11·0 0·011 10·0 0·242 9·0 2·359 8·0 11·887	$m = 12, n = 20$ 12·0 0·001 11·0 0·032 10·0 0·457 9·0 3·295 8·0 13·668	$m = 12, n = 26$ 12·0 0·002 11·0 0·055 10·0 0·638 9·0 3·945 8·0 14·765	$m = 13, n = 15$ 12·0 0·003 11·0 0·092 10·0 1·065 9·0 6·417 8·0 22·474
$m = 12, n = 15$ 11·5 0·001 11·0 0·006 10·5 0·028 10·0 0·156 9·5 0·477 9·0 1·653 8·5 3·771 8·0 9·064 7·5 16·122	$m = 12, n = 21$ 12·0 0·001 11·5 0·002 11·0 0·021 10·5 0·058 10·0 0·328 9·5 0·715 9·0 2·521 8·5 4·552 8·0 11·154	$m = 12, n = 27$ 12·0 0·001 11·5 0·003 11·0 0·040 10·5 0·085 10·0 0·489 9·5 0·893 9·0 3·182 8·5 5·054 8·0 12·545	$m = 13, n = 16$ 12·0 0·002 11·5 0·010 11·0 0·058 10·5 0·193 10·0 0·729 9·5 1·803 9·0 4·756 8·5 9·186 8·0 18·045
$m = 12, n = 16$ 11·0 0·017 10·0 0·316 9·0 2·712 8·0 12·593	$m = 12, n = 22$ 12·0 0·001 11·0 0·039 10·0 0·522 9·0 3·536 8·0 14·088	$m = 12, n = 28$ 12·0 0·002 11·0 0·062 10·0 0·691 9·0 4·118 8·0 15·042	$m = 13, n = 17$ 12·0 0·006 11·0 0·125 10·0 1·266 9·0 6·971 8·0 23·107

$m = 13, n = 18$	9.0 8.209 8.0 24.434	$m = 14, n = 14$	$m = 14, n = 20$
12.0 0.004 11.5 0.014 11.0 0.083 10.5 0.236 10.0 0.898 9.5 2.002 9.0 5.315 8.5 9.574 8.0 18.943	$m = 13, n = 24$	12.0 0.021 11.0 0.351 10.0 2.849 9.0 12.840	13.0 0.003 12.0 0.063 11.0 0.668 10.0 3.993 9.0 14.800
$m = 13, n = 19$	12.5 0.001 12.0 0.010 11.5 0.026 11.0 0.163 10.5 0.351 10.0 1.353 9.5 2.467 9.0 6.643 8.5 10.402	$m = 14, n = 15$	$m = 14, n = 21$
12.0 0.009 11.0 0.159 10.0 1.450 9.0 7.444 8.0 23.627	$m = 13, n = 25$	12.5 0.002 12.0 0.013 11.5 0.055 11.0 0.226 10.5 0.696 10.0 1.988 9.5 4.572 9.0 9.739 8.5 17.491	13.0 0.002 12.5 0.006 12.0 0.043 11.5 0.115 11.0 0.478 10.5 1.048 10.0 3.043 9.5 5.537 9.0 12.021
$m = 13, n = 20$	13.0 0.001 12.0 0.018 11.0 0.257 10.0 1.910 9.0 8.522 8.0 24.753	$m = 14, n = 16$	$m = 14, n = 22$
12.0 0.005 11.5 0.018 11.0 0.109 10.5 0.277 10.0 1.059 9.5 2.177 9.0 5.810 8.5 9.896 8.0 19.704	$m = 13, n = 26$	13.0 0.001 12.0 0.034 11.0 0.461 10.0 3.280 9.0 13.615	13.0 0.004 12.0 0.079 11.0 0.763 10.0 4.290 9.0 15.263
$m = 13, n = 21$	12.5 0.001 12.0 0.013 11.5 0.030 11.0 0.190 10.5 0.384 10.0 1.486 9.5 2.588 9.0 6.996 8.5 10.603	$m = 14, n = 17$	$m = 14, n = 23$
12.0 0.012 11.0 0.193 10.0 1.618 9.0 7.853 8.0 24.063	$m = 13, n = 27$	13.0 0.001 12.5 0.003 12.0 0.021 11.5 0.075 11.0 0.309 10.5 0.825 10.0 2.371 9.5 4.947 9.0 10.615	13.0 0.003 12.5 0.008 12.0 0.055 11.5 0.134 11.0 0.560 10.5 1.144 10.0 3.337 9.5 5.773 9.0 12.594
$m = 13, n = 22$	13.0 0.001 12.0 0.022 11.0 0.287 10.0 2.037 9.0 8.800 8.0 25.030	$m = 14, n = 18$	$m = 14, n = 24$
12.5 0.001 12.0 0.008 11.5 0.022 11.0 0.136 10.5 0.315 10.0 1.211 9.5 2.331 9.0 6.250 8.5 10.169	$m = 13, n = 28$	13.0 0.002 12.0 0.048 11.0 0.567 10.0 3.659 9.0 14.258	13.0 0.005 12.0 0.095 11.0 0.852 10.0 4.555 9.0 15.664
$m = 13, n = 23$	12.5 0.001 12.0 0.015 11.5 0.035 11.0 0.216 10.5 0.415 10.0 1.610 9.5 2.697 9.0 7.315 8.5 10.779	$m = 14, n = 19$	$m = 14, n = 25$
12.0 0.015 11.0 0.226 10.0 1.771	12.5 0.001 12.0 0.015 11.5 0.035 11.0 0.216 10.5 0.415 10.0 1.610 9.5 2.697 9.0 7.315 8.5 10.779	13.0 0.001 12.5 0.005 12.0 0.031 11.5 0.095 11.0 0.394 10.5 0.942 10.0 2.722 9.5 5.265 9.0 11.367	13.0 0.004 12.5 0.010 12.0 0.067 11.5 0.153 11.0 0.638 10.5 1.232 10.0 3.605 9.5 5.979 9.0 13.100

$m = 14, n = 26$ 13·0 0·007 12·0 0·110 11·0 0·935 10·0 4·792 9·0 16·013	10·0 5·907 9·5 10·725	$m = 15, n = 24$ 14·0 0·001 13·5 0·003 13·0 0·021 12·5 0·056 12·0 0·250 11·5 0·541 11·0 1·707 10·5 3·131 10·0 7·403 9·5 11·676	$m = 16, n = 18$ 14·0 0·004 13·0 0·078 12·0 0·746 11·0 4·221 10·0 15·141
$m = 14, n = 27$ 13·0 0·005 12·5 0·012 12·0 0·080 11·5 0·170 11·0 0·714 10·5 1·311 10·0 3·851 9·5 6·161 9·0 13·550	$m = 15, n = 19$ 14·0 0·001 13·0 0·018 12·0 0·245 11·0 1·832 10·0 8·316 9·0 24·526	$m = 15, n = 25$ 14·0 0·002 13·0 0·039 12·0 0·396 11·0 2·419 10·0 9·540 9·0 25·724	$m = 16, n = 19$ 14·0 0·003 13·5 0·011 13·0 0·050 12·5 0·154 12·0 0·517 11·5 1·242 11·0 3·129 10·5 6·093 10·0 12·021
$m = 15, n = 15$ 13·0 0·007 12·0 0·141 11·0 1·342 10·0 7·156 9·0 23·305	$m = 15, n = 20$ 13·5 0·002 13·0 0·012 12·5 0·038 12·0 0·167 11·5 0·426 11·0 1·333 10·5 2·758 10·0 6·463 9·5 11·095	$m = 15, n = 26$ 14·0 0·001 13·5 0·004 13·0 0·027 12·5 0·065 12·0 0·291 11·5 0·593 11·0 1·876 10·5 3·287 10·0 7·803 9·5 11·908	$m = 16, n = 20$ 14·0 0·007 13·0 0·102 12·0 0·880 11·0 4·611 10·0 15·726
$m = 15, n = 16$ 13·5 0·001 13·0 0·004 12·5 0·020 12·0 0·089 11·5 0·296 11·0 0·916 10·5 2·280 10·0 5·280 9·5 10·281	$m = 15, n = 21$ 14·0 0·001 13·0 0·025 12·0 0·297 11·0 2·046 10·0 8·779 9·0 24·990	$m = 16, n = 16$ 14·0 0·002 13·0 0·055 12·0 0·606 11·0 3·780 10·0 14·449	$m = 16, n = 21$ 14·5 0·001 14·0 0·004 13·5 0·014 13·0 0·069 12·5 0·186 12·0 0·627 11·5 1·384 11·0 3·501 10·5 6·413 10·0 12·722
$m = 15, n = 17$ 13·0 0·012 12·0 0·192 11·0 1·598 10·0 7·781 9·0 23·974	$m = 15, n = 22$ 14·0 0·001 13·5 0·002 13·0 0·016 12·5 0·047 12·0 0·208 11·5 0·486 11·0 1·526 10·5 2·956 10·0 6·959 9·5 11·408	$m = 16, n = 17$ 14·0 0·001 13·5 0·007 13·0 0·034 12·5 0·121 12·0 0·405 11·5 1·087 11·0 2·722 10·5 5·720 10·0 11·216	$m = 16, n = 22$ 14·0 0·009 13·0 0·127 12·0 1·006 11·0 4·957 10·0 16·227
$m = 15, n = 18$ 13·5 0·001 13·0 0·008 12·5 0·029 12·0 0·127 11·5 0·363 11·0 1·129 10·5 2·534	$m = 15, n = 23$ 14·0 0·001 13·0 0·031 12·0 0·347 11·0 2·241 10·0 9·184 9·0 25·384		

$m = 16, n = 23$ 14.5 0.001 14.0 0.006 13.5 0.018 13.0 0.088 12.5 0.218 12.0 0.735 11.5 1.512 11.0 3.843 10.5 6.691 10.0 13.338	$m = 17, n = 19$ 15.0 0.001 14.0 0.031 13.0 0.335 12.0 2.186 11.0 9.057 10.0 25.254	$m = 17, n = 24$ 15.0 0.002 14.5 0.007 14.0 0.036 13.5 0.095 13.0 0.342 12.5 0.745 12.0 2.033 11.5 3.751 11.0 8.046 10.5 12.770	$m = 18, n = 22$ 16.0 0.001 15.0 0.016 14.0 0.182 13.0 1.242 12.0 5.548 11.0 17.032
$m = 16, n = 24$ 15.0 0.001 14.0 0.012 13.0 0.153 12.0 1.124 11.0 5.267 10.0 16.661	$m = 17, n = 20$ 15.0 0.001 14.5 0.004 14.0 0.020 13.5 0.063 13.0 0.228 12.5 0.585 12.0 1.585 11.5 3.300 11.0 7.014 10.5 12.121	$m = 18, n = 18$ 15.0 0.008 14.0 0.111 13.0 0.920 12.0 4.717 11.0 15.877	$m = 18, n = 23$ 16.0 0.001 15.5 0.002 15.0 0.011 14.5 0.033 14.0 0.125 13.5 0.311 13.0 0.906 12.5 1.872 12.0 4.288 11.5 7.509 11.0 13.951
$m = 16, n = 25$ 14.5 0.001 14.0 0.008 13.5 0.023 13.0 0.108 12.5 0.248 12.0 0.840 11.5 1.629 11.0 4.155 10.5 6.934 10.0 13.882	$m = 17, n = 21$ 15.0 0.002 14.0 0.042 13.0 0.407 12.0 2.443 11.0 9.568 10.0 25.741	$m = 18, n = 19$ 15.5 0.001 15.0 0.005 14.5 0.019 14.0 0.072 13.5 0.220 13.0 0.635 12.5 1.535 12.0 3.486 11.5 6.828 11.0 12.559	$m = 19, n = 19$ 16.0 0.003 15.0 0.045 14.0 0.428 13.0 2.511 12.0 9.694 11.0 25.856
$m = 17, n = 17$ 15.0 0.001 14.0 0.021 13.0 0.263 12.0 1.904 11.0 8.468 10.0 24.675	$m = 17, n = 22$ 15.0 0.001 14.5 0.005 14.0 0.027 13.5 0.079 13.0 0.285 12.5 0.668 12.0 1.816 11.5 3.539 11.0 7.558 10.5 12.471	$m = 18, n = 20$ 16.0 0.001 15.0 0.012 14.0 0.146 13.0 1.085 12.0 5.157 11.0 16.499	$m = 19, n = 20$ 16.0 0.002 15.5 0.007 15.0 0.029 14.5 0.094 14.0 0.290 13.5 0.748 13.0 1.816 12.5 3.800 12.0 7.484 11.5 13.009
$m = 17, n = 18$ 14.5 0.003 14.0 0.013 13.5 0.048 13.0 0.173 12.5 0.498 12.0 1.342 11.5 3.029 11.0 6.405 10.5 11.709	$m = 17, n = 23$ 15.0 0.003 14.0 0.053 13.0 0.477 12.0 2.678 11.0 10.014	$m = 18, n = 21$ 15.5 0.001 15.0 0.007 14.5 0.025 14.0 0.098 13.5 0.266 13.0 0.772 12.5 1.712 12.0 3.904 11.5 7.193 11.0 13.300	$m = 19, n = 21$ 16.0 0.004 15.0 0.062 14.0 0.519 13.0 2.808 12.0 10.246

$m = 19, n = 22$	$m = 20, n = 20$	$m = 20, n = 21$	
16·0 0·003	17·0 0·001	17·0 0·001	
15·5 0·010	16·0 0·018	16·5 0·003	
15·0 0·041	15·0 0·192	16·0 0·011	
14·5 0·117	14·0 1·282	15·5 0·039	
14·0 0·363	13·0 5·642	15·0 0·129	
13·5 0·854	12·0 17·153	14·5 0·352	
13·0 2·082		14·0 0·910	
12·5 4·078		13·5 2·027	
12·0 8·069		13·0 4·259	
11·5 13·391		12·5 7·888	
		12·0 13·784	

### Souhrn

## TABULKY PRO DVOUVÝBĚROVÝ MEDIÁNOVÝ TEST

ZBYNĚK ŠIDÁK

Pro neparametrický mediánový test pro dva výběry, jejichž rozsahy  $m, n$  splňují  $3 \leq m \leq n, m + n \leq 41$ , se tabelují pravděpodobnosti horních konců rozložení až do bodu, kde je po prvé překročeno 10%.

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