



Technical Note

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PERCENTAGE POINTS OF THE BETA DISTRIBUTION

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U. S. DEPARTMENT OF COMMERCE
NATIONAL BUREAU OF STANDARDS

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Percentage Points of the Beta Distribution

L. E. Vogler

Tables are presented of percentage points $x(p|\nu_2/2, \nu_1/2)$ of the Beta distribution. The percentage points are given to six figures correct to within a unit in the last place for probability levels p :

$p = 0.0001, 0.001, 0.005, 0.01, 0.025, 0.05, 0.1, 0.25, 0.5,$ and for degrees of freedom ν_2 and ν_1 :

$\nu_2 = 1(0.1)2, 2.2, 2.5(0.5)5, 6(1.0)10, 12, 15, 20, 24, 30, 40, 60, 120,$

$\nu_1 = 1(1.0)10, 12, 15, 20, 24, 30, 40, 60, 120.$

A table of the Complete Beta function for the above values of ν_1 and ν_2 is also included.

The present tables of percentage points of the Beta distribution are the outgrowth of a project started at the Central Radio Propagation Laboratory of the National Bureau of Standards with the purpose of extending existing tables of the Fisher-Snedecor F -distribution to cover lower probability levels p and include non-integer values of the degrees of freedom ν_1 and ν_2 . Values of F for finite ν_1 and ν_2 are most easily obtained through its relationship to the Beta distribution.

Thompson's excellent five-figure tables of Beta function percentage points [Thompson, 1941] have been the basic compilation of this statistic since their publication; however, the probability level does not go below 0.005 and no non-integer values of ν_1 or ν_2 are included. In certain situations the Beta distribution with non-integer

degrees of freedom may be used to approximate an unknown distribution [Pearson and Hartley, 1956]; also in the analysis of variance, some applications require the use of the F-distribution with non-integer values of ν_2 [Box, 1954a; 1954b].

It was decided to calculate six-figure percentage points for all of the probability levels and most of the ν_1 's and ν_2 's given in the Thompson tables and to add non-integral entries of ν_2 between 1 and 5 and extend the range of p down to 0.0001; the percentage points are tabulated in table II. The six-figure values would assure five-figure accuracy in the F-distribution and could also serve as a check on the Thompson tables. A list of the discrepancies encountered is given in table I:

TABLE I

p	ν_1	ν_2	Thompson	Table II
0.5	4	5	0.56444	0.564446
0.5	5	4	0.43556	0.435554
0.5	20	1	0.023052	0.0230514
0.25	24	2	0.023689	0.0236884
0.1	5	1	0.0 ² 34818	0.0 ² 348189
0.1	15	4	0.064482	0.0644585
0.01	8	1	0.0 ⁴ 20897	0.0 ⁴ 208988
0.01	10	7	0.095627	0.0956276
0.01	20	8	0.069456	0.0694554
0.01	40	9	0.046956	0.0469567
0.01	60	15	0.075824	0.0758234
0.005	7	6	0.073619	0.0736184
0.005	9	7	0.083707	0.0837076
0.005	12	8	0.086787	0.0867877
0.005	120	30	0.098050	0.0980479

The Beta distribution is defined through the cumulative distribution function:

$$p(x|\nu_2/2, \nu_1/2) = \left[B(\nu_2/2, \nu_1/2) \right]^{-1} \int_0^x u^{(\nu_2/2)-1} (1-u)^{(\nu_1/2)-1} du, \quad (1)$$

where $B(\nu_2/2, \nu_1/2)$ denotes the Complete Beta function given by

$$B(\nu_2/2, \nu_1/2) \equiv \int_0^1 u^{(\nu_2/2)-1} (1-u)^{(\nu_1/2)-1} du = \frac{\Gamma(\nu_2/2) \Gamma(\nu_1/2)}{\Gamma[(\nu_2/2) + (\nu_1/2)]}. \quad (2)$$

Values of (2) for the ν_1 's and ν_2 's used in the computations of this paper are shown in table III. Note that $B(\nu_2/2, \nu_1/2) = B(\nu_1/2, \nu_2/2)$ and some of the values in the table are repeated for the convenience of the reader.

The percentage points x are calculated by using (1) with given values of p , ν_1 , and ν_2 . The integral in (1) is expressed in series form and, since $0 < x < 1$ and ν_1 and ν_2 are finite, root-solving methods are applied to evaluate x . Unfortunately, no single series representation is computationally practical for all values of ν_1 and ν_2 . Consequently, different methods must be used for different ranges of the degrees of freedom.

After considerable experimentation, two expansions of (1) were found that could be used in the area covered by the tables. For x not too near unity, the following relationship was utilized:

$$p(\nu_2/2) B(\nu_2/2, \nu_1/2) = x^{\nu_2/2} (1-x)^{(\nu_1/2)-1} \left[1 + \sum_{k=1}^{\infty} T_k(x) \right], \quad (3)$$

where

$$T_k(x) = \left(\frac{\nu_1 - 2k}{\nu_2 + 2k} \right) \left(\frac{x}{1-x} \right) T_{k-1}(x), \quad T_0(x) = 1.$$

For x near unity, an alternate expression was derived:

$$(1-p)(\nu_1/2) B(\nu_2/2, \nu_1/2) = (1-x)^{\nu_1/2} \left[1 + (\nu_1/2) \sum_{k=1}^{\infty} T'_k(x) \right], \quad (4)$$

where

$$T'_k(x) = \left(\frac{\nu_1 + 2k - 2}{\nu_1 + 2k} \right) \left(\frac{\nu_2 - 2k}{2k} \right) (1-x) T'_{k-1}(x), \quad T'_0(x) = -2/\nu_1.$$

Using either (3) or (4) (and occasionally both for checking purposes), x was obtained through an iteration process, Newton's method of root-solving being in general the most practical. As a further check, a third expression was derived for those areas of the tables containing the change-over from (3) to (4):

$$x_{i+1} = x_i \left\{ 1 + (2/\nu_2) \sum_{k=1}^{\infty} (D_k - C_k) x_i^k \right\}, \quad (5)$$

where

$$D_k = -\left(\frac{\delta_i + 1 - k}{k}\right) D_{k-1}, \quad D_0 = 1, \quad C_k = \left\{ \frac{\nu_2 + 2k + \nu_1 - 4}{\nu_2 + 2k} \right\} C_{k-1}, \quad C_1 = \frac{\nu_1 - 2}{\nu_2 + 2},$$

$$\delta_i = \left[\left\{ \ln(p \nu_2 B/2) - (\nu_2/2) \ln x_i \right\} / \ln(1 - x_i) \right] - (\nu_1 - 2)/2,$$

and the subscript i denotes the number of iterations.

Equations (3), (4), and (5) were programmed for an electronic computer, at least eight figures being carried in all arithmetic operations. Successive approximations to the true x were calculated from the right hand members of (3) or (4) until agreement to at least seven figures was reached with the expressions on the left. The final x was then rounded to six figures.

The main portion of the tables was checked (to five figures) by comparison with the Thompson tables, differences being re-checked through hand calculations (see table I). For values not given in Thompson, plots were made of x vs p for a given ν_1 and ν_2 with the hope of at least avoiding gross errors.

Differencing was not used to check the table entries because of the irregular intervals in ν_2 . In those regions where cumulative round-off errors were of possible concern, the x -values were checked by independent runs of at least two (and sometimes all three) of the generating equations (3), (4), and (5). As a final check most of the entries were re-calculated using double-precision arithmetic in all machine operations. To avoid copying errors, the reproduced table was compared with the original computer print-outs, and it is believed that all entries are correct to within a unit in the last figure.

The present tables are constructed only up to $p = 0.5$, thus giving the lower percentage points of the Beta distribution. Corresponding upper percentage points are easily obtained by interchanging ν_1 and ν_2 and replacing p and x by $(1-p)$ and $(1-x)$:

$$p(x|\nu_2/2, \nu_1/2) = 1 - p(1-x|\nu_1/2, \nu_2/2) . \quad (6)$$

Although the Beta distribution may be used indirectly to obtain a number of important statistical distributions, only two of its applications will be mentioned here.

(a) The Fisher-Snedecor variance ratio F with degrees of freedom ν_1 and ν_2 and of probability p is related to x by

$$F = \left(\frac{\nu_2}{\nu_1} \right) \left(\frac{1-x}{x} \right) . \quad (7)$$

(b) The relationship to the cumulative sum of the individual terms of the binomial distribution is given by

$$\sum_{k=m}^n \binom{n}{k} x^k (1-x)^{n-k} = p(x|m, n-m+1) . \quad (8)$$

Interpolation within the tables to a high degree of accuracy is probably most easily accomplished through the method of Lagrangian interpolation. Tables of Lagrangian coefficients for harmonic interpolation have been developed by Comrie and Hartley [1941]; a comprehensive discussion of interpolation is given by Hartley [1941] and tables to facilitate the p -wise interpolation may be found in a paper by Salzer [1951]. For practical applications two or three figures will

often suffice, in which case a first order harmonic interpolation in the v -directions may be used. Thus, if for a given p : $v_1' \leq v_1 \leq v_1''$, $v_2' \leq v_2 \leq v_2''$, and $x_1'(v_1', v_2')$, $x_1''(v_1'', v_2')$, $x_2'(v_1', v_2'')$, $x_2''(v_1'', v_2'')$ denote the nearest tabulated values, then

$$x(v_1, v_2) = \delta_2 x_1 + (1 - \delta_2) x_2, \quad (9)$$

where

$$x_1 = \delta_1 x_1' + (1 - \delta_1) x_1'', \quad x_2 = \delta_1 x_2' + (1 - \delta_1) x_2'', \quad (10)$$

and

$$\delta_1 = \frac{v_1'(v_1'' - v_1)}{v_1(v_1'' - v_1')}, \quad \delta_2 = \frac{v_2'(v_2'' - v_2)}{v_2(v_2'' - v_2')} \quad (11)$$

The function $\log p$ may then be used for linear interpolation in the p -direction.

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TABLE II

PERCENTAGE POINTS OF THE BETA DISTRIBUTION

PERCENTAGE POINTS OF THE BETA DISTRIBUTION

$\nu_1 = 1$

ν_2	p=0.0001	p=0.001	p=0.005	p=0.01	p=0.025	p=0.05	p=0.1	p=0.25	p=0.5
1	(-8)2.46740	(-6)2.46740	(-5)6.16838	(-4)2.46720	(-3)1.54133	(-3)6.15583	(-2)2.44717	(-1)1.46447	(-1)5.00000
1.1	(-7)1.28058	(-6)8.42537	(-4)1.57189	(-4)5.54235	(-3)2.93014	(-2)1.03081	(-2)3.60442	(-1)1.81222	(-1)5.42541
1.2	(-7)5.03764	(-5)2.33825	(-4)3.41820	(-3)1.08496	(-3)4.99017	(-2)1.57890	(-2)4.95874	(-1)2.15558	(-1)5.79267
1.3	(-6)1.60167	(-5)5.53386	(-4)6.58093	(-3)1.91093	(-3)7.81055	(-2)2.25859	(-2)6.47480	(-1)2.48844	(-1)6.11126
1.4	(-6)4.30871	(-4)1.15586	(-3)1.15160	(-3)3.09810	(-2)1.14422	(-2)3.06241	(-2)8.11651	(-1)2.80714	(-1)6.38916
1.5	(-5)1.01422	(-4)2.18493	(-3)1.86721	(-3)4.70126	(-2)1.59001	(-2)3.97876	(-2)9.85004	(-1)3.10975	(-1)6.63300
1.6	(-5)2.14216	(-4)3.80898	(-3)2.84592	(-3)6.76140	(-2)2.11692	(-2)4.99376	(-1)1.16454	(-1)3.39547	(-1)6.84818
1.7	(-5)4.13867	(-4)6.21246	(-3)4.12258	(-3)9.30489	(-2)2.72110	(-2)6.09264	(-1)1.34772	(-1)3.66428	(-1)7.03915
1.8	(-5)7.42418	(-4)9.58647	(-3)5.72461	(-2)1.23442	(-2)3.39705	(-2)7.26073	(-1)1.53243	(-1)3.91663	(-1)7.20954
1.9	(-4)1.25122	(-3)1.41196	(-3)7.67150	(-2)1.58793	(-2)4.13822	(-2)8.48411	(-1)1.71697	(-1)4.15325	(-1)7.36234
2	(-4)1.99990	(-3)1.99900	(-3)9.97500	(-2)1.99000	(-2)4.93750	(-2)9.75000	(-1)1.90000	(-1)4.37500	(-1)7.50000
2.2	(-4)4.48703	(-3)3.63681	(-2)1.56637	(-2)2.93172	(-2)6.68131	(-1)1.23648	(-1)2.25763	(-1)4.77771	(-1)7.73779
2.5	(-3)1.17884	(-3)7.42762	(-2)2.67998	(-2)4.64520	(-2)9.55746	(-1)1.63632	(-1)2.76412	(-1)5.29365	(-1)8.02247
3	(-3)3.81191	(-2)1.76440	(-2)5.12365	(-2)8.08272	(-1)1.46746	(-1)2.28520	(-1)3.51357	(-1)5.97150	(-1)8.36806
3.5	(-3)8.76150	(-2)3.25162	(-2)8.08201	(-1)1.19192	(-1)1.97938	(-1)2.88205	(-1)4.14731	(-1)6.48611	(-1)8.61240
4	(-2)1.62854	(-2)5.11919	(-1)1.13209	(-1)1.58745	(-1)2.46642	(-1)3.41628	(-1)4.68123	(-1)6.88776	(-1)8.79385
4.5	(-2)2.62922	(-2)7.26186	(-1)1.46647	(-1)1.97741	(-1)2.91813	(-1)3.88943	(-1)5.13312	(-1)7.20892	(-1)8.93372
5	(-2)3.84789	(-2)9.58207	(-1)1.79955	(-1)2.35204	(-1)3.33178	(-1)4.30741	(-1)5.51851	(-1)7.47108	(-1)9.04474
6	(-2)6.78050	(-1)1.44552	(-1)2.43556	(-1)3.03874	(-1)4.05047	(-1)5.00526	(-1)6.13751	(-1)7.87255	(-1)9.20967
7	(-1)1.01205	(-1)1.93129	(-1)3.01262	(-1)3.63705	(-1)4.64417	(-1)5.55933	(-1)6.61037	(-1)8.16496	(-1)9.32622
8	(-1)1.36299	(-1)2.39415	(-1)3.52606	(-1)4.15398	(-1)5.13779	(-1)6.00706	(-1)6.98207	(-1)8.38716	(-1)9.41289
9	(-1)1.71505	(-1)2.82511	(-1)3.97990	(-1)4.60089	(-1)5.55237	(-1)6.37513	(-1)7.28137	(-1)8.56159	(-1)9.47985
10	(-1)2.05858	(-1)3.22169	(-1)4.38088	(-1)4.98895	(-1)5.90433	(-1)6.68244	(-1)7.52728	(-1)8.70211	(-1)9.53313
12	(-1)2.70106	(-1)3.91602	(-1)5.05173	(-1)5.62582	(-1)6.46769	(-1)7.16537	(-1)7.90694	(-1)8.91443	(-1)9.61254
15	(-1)3.53373	(-1)4.74873	(-1)5.81439	(-1)6.33363	(-1)7.07564	(-1)7.67535	(-1)8.29959	(-1)9.12849	(-1)9.69133
20	(-1)4.60835	(-1)5.74403	(-1)6.67915	(-1)7.11846	(-1)7.73052	(-1)8.21313	(-1)8.70525	(-1)9.34420	(-1)9.76949
24	(-1)5.25587	(-1)6.31114	(-1)7.15323	(-1)7.54175	(-1)8.07628	(-1)8.49267	(-1)8.91295	(-1)9.45263	(-1)9.80832
30	(-1)5.98897	(-1)6.92952	(-1)7.65703	(-1)7.98669	(-1)8.43466	(-1)8.77941	(-1)9.12389	(-1)9.56142	(-1)9.84699
40	(-1)6.81797	(-1)7.60321	(-1)8.19204	(-1)8.45414	(-1)8.80593	(-1)9.07343	(-1)9.33808	(-1)9.67057	(-1)9.88550
60	(-1)7.75425	(-1)8.33646	(-1)8.75981	(-1)8.94493	(-1)9.19039	(-1)9.37483	(-1)9.55550	(-1)9.78006	(-1)9.92383
120	(-1)8.81033	(-1)9.13380	(-1)9.36192	(-1)9.45993	(-1)9.58832	(-1)9.68366	(-1)9.77614	(-1)9.88988	(-1)9.96200
∞	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000

The numbers in parentheses indicate the power of ten by which the number following is to be multiplied, e.g., (-1)1.23456 = 0.123456.

PERCENTAGE POINTS OF THE BETA DISTRIBUTION

$$\nu_1 = 2$$

ν_2	p=0.0001	p=0.001	p=0.005	p=0.01	p=0.025	p=0.05	p=0.1	p=0.25	p=0.5
1	(-8)1.00000	(-6)1.00000	(-5)2.50000	(-4)1.00000	(-4)6.25000	(-3)2.50000	(-2)1.00000	(-2)6.25000	(-1)2.50000
1.1	(-8)5.33670	(-6)3.51119	(-5)6.55102	(-4)2.31013	(-3)1.22226	(-3)4.31014	(-2)1.51991	(-2)8.04166	(-1)2.83578
1.2	(-7)2.15443	(-5)1.00000	(-4)1.46201	(-4)4.64159	(-3)2.13747	(-3)6.78604	(-2)2.15443	(-2)9.92126	(-1)3.14980
1.3	(-7)7.01704	(-5)2.42446	(-4)2.88372	(-4)8.37678	(-3)3.42999	(-3)9.96358	(-2)2.89427	(-1)1.18510	(-1)3.44252
1.4	(-6)1.93070	(-5)5.17947	(-4)5.16196	(-3)1.38950	(-3)5.14450	(-2)1.38480	(-2)3.72759	(-1)1.38011	(-1)3.71499
1.5	(-6)4.64159	(-4)1.00000	(-4)8.54988	(-3)2.15443	(-3)7.31004	(-2)1.84202	(-2)4.64159	(-1)1.57490	(-1)3.96850
1.6	(-5)1.00000	(-4)1.77828	(-3)1.32957	(-3)3.16228	(-3)9.94088	(-2)2.36435	(-2)5.62341	(-1)1.76777	(-1)4.20448
1.7	(-5)1.96842	(-4)2.95521	(-3)1.96293	(-3)4.43669	(-2)1.30384	(-2)2.94698	(-2)6.66085	(-1)1.95747	(-1)4.42433
1.8	(-5)3.59381	(-4)4.64159	(-3)2.77524	(-3)5.99484	(-2)1.65933	(-2)3.58436	(-2)7.74264	(-1)2.14311	(-1)4.62937
1.9	(-5)6.15848	(-4)6.95193	(-3)3.78323	(-3)7.84760	(-2)2.05883	(-2)4.27066	(-2)8.85867	(-1)2.32409	(-1)4.82088
2	(-4)1.00000	(-3)1.00000	(-3)5.00000	(-2)1.00000	(-2)2.50000	(-2)5.00000	(-1)1.00000	(-1)2.50000	(-1)5.00000
2.2	(-4)2.31013	(-3)1.87382	(-3)8.09384	(-2)1.51991	(-2)3.49608	(-2)6.56516	(-1)1.23285	(-1)2.83578	(-1)5.32521
2.5	(-4)6.30957	(-3)3.98107	(-2)1.44270	(-2)2.51189	(-2)5.22820	(-2)9.10282	(-1)1.58489	(-1)3.29877	(-1)5.74349
3	(-3)2.15443	(-2)1.00000	(-2)2.92402	(-2)4.64159	(-2)8.54988	(-1)1.35721	(-1)2.15443	(-1)3.96850	(-1)6.29961
3.5	(-3)5.17947	(-2)1.93070	(-2)4.84313	(-2)7.19686	(-1)1.21489	(-1)1.80532	(-1)2.68270	(-1)4.52862	(-1)6.72950
4	(-2)1.00000	(-2)3.16228	(-2)7.07107	(-1)1.00000	(-1)1.58114	(-1)2.23607	(-1)3.16228	(-1)5.00000	(-1)7.07107
4.5	(-2)1.66810	(-2)4.64159	(-2)9.49118	(-1)1.29155	(-1)1.94077	(-1)2.64098	(-1)3.59381	(-1)5.40030	(-1)7.34867
5	(-2)2.51189	(-2)6.30957	(-1)1.20112	(-1)1.58489	(-1)2.28653	(-1)3.01709	(-1)3.98107	(-1)5.74349	(-1)7.57858
6	(-2)4.64159	(-1)1.00000	(-1)1.70998	(-1)2.15443	(-1)2.92402	(-1)3.68403	(-1)4.64159	(-1)6.29961	(-1)7.93701
7	(-2)7.19686	(-1)1.38950	(-1)2.20071	(-1)2.68270	(-1)3.48553	(-1)4.24891	(-1)5.17947	(-1)6.72950	(-1)8.20335
8	(-1)1.00000	(-1)1.77828	(-1)2.65915	(-1)3.16228	(-1)3.97635	(-1)4.72871	(-1)5.62341	(-1)7.07107	(-1)8.40896
9	(-1)1.29155	(-1)2.15443	(-1)3.08078	(-1)3.59381	(-1)4.40541	(-1)5.13904	(-1)5.99484	(-1)7.34867	(-1)8.57244
10	(-1)1.58489	(-1)2.51189	(-1)3.46572	(-1)3.98107	(-1)4.78176	(-1)5.49280	(-1)6.30957	(-1)7.57858	(-1)8.70551
12	(-1)2.15443	(-1)3.16228	(-1)4.13519	(-1)4.64159	(-1)5.40742	(-1)6.06962	(-1)6.81292	(-1)7.93701	(-1)8.90899
15	(-1)2.92864	(-1)3.98107	(-1)4.93396	(-1)5.41170	(-1)6.11494	(-1)6.70702	(-1)7.35642	(-1)8.31238	(-1)9.11722
20	(-1)3.98107	(-1)5.01187	(-1)5.88704	(-1)6.30957	(-1)6.91503	(-1)7.41134	(-1)7.94328	(-1)8.70551	(-1)9.33033
24	(-1)4.64159	(-1)5.62341	(-1)6.43054	(-1)6.81292	(-1)7.35352	(-1)7.79078	(-1)8.25404	(-1)8.90899	(-1)9.43874
30	(-1)5.41170	(-1)6.30957	(-1)7.02422	(-1)7.35642	(-1)7.81981	(-1)8.18964	(-1)8.57696	(-1)9.11722	(-1)9.54842
40	(-1)6.30957	(-1)7.07946	(-1)7.67270	(-1)7.94328	(-1)8.31567	(-1)8.60892	(-1)8.91251	(-1)9.33033	(-1)9.65936
60	(-1)7.35642	(-1)7.94328	(-1)8.38106	(-1)8.57696	(-1)8.84297	(-1)9.04966	(-1)9.26119	(-1)9.54842	(-1)9.77160
120	(-1)8.57696	(-1)8.91251	(-1)9.15481	(-1)9.26119	(-1)9.40371	(-1)9.51297	(-1)9.62351	(-1)9.77160	(-1)9.88514
∞	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000

The numbers in parentheses indicate the power of ten by which the number following is to be multiplied, e.g., (-1)1.23456 = 0.123456.

PERCENTAGE POINTS OF THE BETA DISTRIBUTION

$\nu_1 = 3$

ν_2	p=0.0001	p=0.001	p=0.005	p=0.01	p=0.025	p=0.05	p=0.1	p=0.25	p=0.5
1	(-9)6.16850	(-7)6.16850	(-5)1.54213	(-5)6.16863	(-4)3.85581	(-3)1.54292	(-3)6.18124	(-2)3.90631	(-1)1.63194
1.1	(-8)3.32319	(-6)2.18644	(-5)4.07941	(-4)1.43860	(-4)7.61294	(-3)2.68627	(-3)9.49366	(-2)5.09155	(-1)1.88195
1.2	(-7)1.35370	(-6)6.28333	(-5)9.18654	(-4)2.91673	(-3)1.34361	(-3)4.26959	(-2)1.35948	(-2)6.36104	(-1)2.12294
1.3	(-7)4.44703	(-5)1.53650	(-4)1.82765	(-4)5.30961	(-3)2.17518	(-3)6.32652	(-2)1.84456	(-2)7.69123	(-1)2.35408
1.4	(-6)1.23364	(-5)3.30952	(-4)3.29861	(-4)8.88067	(-3)3.29032	(-3)8.87149	(-2)2.39876	(-2)9.06251	(-1)2.57508
1.5	(-6)2.98914	(-5)6.44001	(-4)5.50690	(-3)1.38798	(-3)4.71394	(-2)1.19029	(-2)3.01521	(-1)1.04589	(-1)2.78597
1.6	(-6)6.48841	(-4)1.15386	(-4)8.62887	(-3)2.05298	(-3)6.46165	(-2)1.54069	(-2)3.68664	(-1)1.18677	(-1)2.98699
1.7	(-5)1.28641	(-4)1.93140	(-3)1.28327	(-3)2.90176	(-3)8.54063	(-2)1.93608	(-2)4.40582	(-1)1.32785	(-1)3.17850
1.8	(-5)2.36493	(-4)3.05465	(-3)1.82713	(-3)3.94902	(-2)1.09509	(-2)2.37357	(-2)5.16583	(-1)1.46834	(-1)3.36093
1.9	(-5)4.07960	(-4)4.60570	(-3)2.50774	(-3)5.20543	(-2)1.36864	(-2)2.84993	(-2)5.96021	(-1)1.60761	(-1)3.53474
2	(-5)6.66678	(-4)6.66778	(-3)3.33612	(-3)6.67783	(-2)1.67369	(-2)3.36175	(-2)6.78302	(-1)1.74518	(-1)3.70039
2.2	(-4)1.55881	(-3)1.26474	(-3)5.46843	(-2)1.02808	(-2)2.37244	(-2)4.47797	(-2)8.49310	(-1)2.01383	(-1)4.00905
2.5	(-4)4.32869	(-3)2.73261	(-3)9.91860	(-2)1.72979	(-2)3.61573	(-2)6.33473	(-1)1.11551	(-1)2.39744	(-1)4.42179
3	(-3)1.51437	(-3)7.03688	(-2)2.06325	(-2)3.28335	(-2)6.08303	(-2)9.73082	(-1)1.56476	(-1)2.98014	(-1)5.00000
3.5	(-3)3.71794	(-2)1.38848	(-2)3.49658	(-2)5.21263	(-2)8.86091	(-1)1.32823	(-1)2.00123	(-1)3.49355	(-1)5.47196
4	(-3)7.31190	(-2)2.31842	(-2)5.20987	(-2)7.39602	(-1)1.17863	(-1)1.68250	(-1)2.41363	(-1)3.94477	(-1)5.86373
4.5	(-2)1.23989	(-2)3.46210	(-2)7.12092	(-2)9.73164	(-1)1.47479	(-1)2.02652	(-1)2.79773	(-1)4.34217	(-1)6.19379
5	(-2)1.89484	(-2)4.77978	(-2)9.15930	(-1)1.21419	(-1)1.76736	(-1)2.35534	(-1)3.15290	(-1)4.69360	(-1)6.47548
6	(-2)3.59193	(-2)7.78110	(-1)1.34079	(-1)1.69786	(-1)2.32591	(-1)2.95987	(-1)3.78160	(-1)5.28481	(-1)6.93053
7	(-2)5.68970	(-1)1.10555	(-1)1.76557	(-1)2.16358	(-1)2.83752	(-1)3.49293	(-1)4.31507	(-1)5.76094	(-1)7.28193
8	(-2)8.05085	(-1)1.44174	(-1)2.17454	(-1)2.59968	(-1)3.29926	(-1)3.96068	(-1)4.77003	(-1)6.15157	(-1)7.56136
9	(-1)1.05620	(-1)1.77496	(-1)2.56037	(-1)3.00243	(-1)3.71374	(-1)4.37155	(-1)5.16097	(-1)6.47732	(-1)7.78880
10	(-1)1.31384	(-1)2.09827	(-1)2.92037	(-1)3.37189	(-1)4.08549	(-1)4.73377	(-1)5.49964	(-1)6.75286	(-1)7.97751
12	(-1)1.82653	(-1)2.70194	(-1)3.56323	(-1)4.01907	(-1)4.72022	(-1)5.34024	(-1)6.05554	(-1)7.19307	(-1)8.27249
15	(-1)2.54647	(-1)3.48790	(-1)4.35690	(-1)4.79986	(-1)5.46281	(-1)6.03327	(-1)6.67576	(-1)7.66843	(-1)8.58268
20	(-1)3.56193	(-1)4.51517	(-1)5.34001	(-1)5.74472	(-1)6.33391	(-1)6.82706	(-1)7.36913	(-1)8.18249	(-1)8.90923
24	(-1)4.21858	(-1)5.14322	(-1)5.91760	(-1)6.29027	(-1)6.82531	(-1)7.26692	(-1)7.74639	(-1)8.45528	(-1)9.07901
30	(-1)5.00145	(-1)5.86357	(-1)6.56220	(-1)6.89192	(-1)7.35870	(-1)7.73857	(-1)8.14593	(-1)8.73930	(-1)9.25336
40	(-1)5.93619	(-1)6.69080	(-1)7.28232	(-1)7.55605	(-1)7.93812	(-1)8.24466	(-1)8.56930	(-1)9.03514	(-1)9.43244
60	(-1)7.05402	(-1)7.64198	(-1)8.08767	(-1)8.28985	(-1)8.56806	(-1)8.78809	(-1)9.01819	(-1)9.34341	(-1)9.61645
120	(-1)8.39307	(-1)8.73718	(-1)8.98934	(-1)9.10144	(-1)9.25350	(-1)9.37203	(-1)9.49442	(-1)9.66480	(-1)9.80556
∞	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000

The numbers in parentheses indicate the power of ten by which the number following is to be multiplied, e.g., (-1)1.23456 = 0.123456.

PERCENTAGE POINTS OF THE BETA DISTRIBUTION

$\nu_1 = 4$

ν_2	$p=0.0001$	$p=0.001$	$p=0.005$	$p=0.01$	$p=0.025$	$p=0.05$	$p=0.1$	$p=0.25$	$p=0.5$
1	(-9)4.44444	(-7)4.44445	(-5)1.11112	(-5)4.44458	(-4)2.77829	(-3)1.11194	(-3)4.45768	(-2)2.83095	(-1)1.20615
1.1	(-8)2.40555	(-6)1.58270	(-5)2.95297	(-4)1.04138	(-4)5.51138	(-3)1.94526	(-3)6.88163	(-2)3.71331	(-1)1.40257
1.2	(-8)9.84313	(-6)4.56879	(-5)6.67987	(-4)2.12092	(-4)9.77159	(-3)3.10642	(-3)9.90437	(-2)4.66821	(-1)1.59486
1.3	(-7)3.24761	(-5)1.12209	(-4)1.33474	(-4)3.87783	(-3)1.58899	(-3)4.62427	(-2)1.35055	(-2)5.67912	(-1)1.78205
1.4	(-7)9.04694	(-5)2.42705	(-4)2.41915	(-4)6.51345	(-3)2.41405	(-3)6.51387	(-2)1.76499	(-2)6.73197	(-1)1.96360
1.5	(-6)2.20098	(-5)4.74199	(-4)4.05518	(-3)1.02220	(-3)3.47322	(-3)8.77860	(-2)2.22933	(-2)7.81500	(-1)2.13923
1.6	(-6)4.79635	(-5)8.52963	(-4)6.37934	(-3)1.51801	(-3)4.78067	(-2)1.14125	(-2)2.73878	(-2)8.91847	(-1)2.30887
1.7	(-6)9.54553	(-4)1.43318	(-4)9.52379	(-3)2.15400	(-3)6.34447	(-2)1.44029	(-2)3.28843	(-1)1.00344	(-1)2.47253
1.8	(-5)1.76130	(-4)2.27506	(-3)1.36108	(-3)2.94256	(-3)8.16728	(-2)1.77319	(-2)3.87346	(-1)1.11562	(-1)2.63031
1.9	(-5)3.04916	(-4)3.44257	(-3)1.87491	(-3)3.89319	(-2)1.02473	(-2)2.13787	(-2)4.48929	(-1)1.22787	(-1)2.78239
2	(-5)5.00013	(-4)5.00125	(-3)2.50313	(-3)5.01256	(-2)1.25791	(-2)2.53206	(-2)5.13167	(-1)1.33975	(-1)2.92893
2.2	(-4)1.17689	(-4)9.54989	(-3)4.13127	(-3)7.77145	(-2)1.79634	(-2)3.39948	(-2)6.48064	(-1)1.56109	(-1)3.20627
2.5	(-4)3.29851	(-3)2.08284	(-3)7.56647	(-2)1.32073	(-2)2.76687	(-2)4.86347	(-2)8.61580	(-1)1.88370	(-1)3.58610
3	(-3)1.17015	(-3)5.44068	(-2)1.59763	(-2)2.54583	(-2)4.73157	(-2)7.60095	(-1)1.23099	(-1)2.38845	(-1)4.13627
3.5	(-3)2.90870	(-2)1.08740	(-2)2.74442	(-2)4.09878	(-2)6.99504	(-1)1.05374	(-1)1.60021	(-1)2.84802	(-1)4.60178
4	(-3)5.78467	(-2)1.83703	(-2)4.14002	(-2)5.89031	(-2)9.42993	(-1)1.35350	(-1)1.95800	(-1)3.26352	(-1)5.00000
4.5	(-3)9.90940	(-2)2.77271	(-2)5.72294	(-2)7.84117	(-1)1.19434	(-1)1.65077	(-1)2.29885	(-1)3.63859	(-1)5.34419
5	(-2)1.52855	(-2)3.86578	(-2)7.43779	(-2)9.88773	(-1)1.44711	(-1)1.94034	(-1)2.62044	(-1)3.97749	(-1)5.64446
6	(-2)2.94587	(-2)6.40381	(-1)1.10885	(-1)1.40868	(-1)1.94120	(-1)2.48605	(-1)3.20461	(-1)4.56322	(-1)6.14272
7	(-2)4.73331	(-2)9.23581	(-1)1.48299	(-1)1.82355	(-1)2.40629	(-1)2.98110	(-1)3.71508	(-1)5.04943	(-1)6.53914
8	(-2)6.78131	(-1)1.22014	(-1)1.85097	(-1)2.22072	(-1)2.83582	(-1)3.42592	(-1)4.16110	(-1)5.45819	(-1)6.86190
9	(-2)8.99421	(-1)1.51921	(-1)2.20461	(-1)2.59453	(-1)3.22901	(-1)3.82452	(-1)4.55219	(-1)5.80601	(-1)7.12972
10	(-1)1.12969	(-1)1.81386	(-1)2.53993	(-1)2.94314	(-1)3.58765	(-1)4.18197	(-1)4.89684	(-1)6.10521	(-1)7.35550
12	(-1)1.59637	(-1)2.37478	(-1)3.15088	(-1)3.56635	(-1)4.21277	(-1)4.79297	(-1)5.47435	(-1)6.59290	(-1)7.71510
15	(-1)2.26817	(-1)3.12430	(-1)3.92551	(-1)4.33867	(-1)4.96408	(-1)5.51019	(-1)6.13604	(-1)7.13315	(-1)8.10232
20	(-1)3.24365	(-1)4.13359	(-1)4.91435	(-1)5.30184	(-1)5.87220	(-1)6.35641	(-1)6.89757	(-1)7.73373	(-1)8.52037
24	(-1)3.88989	(-1)4.76597	(-1)5.50975	(-1)5.87173	(-1)6.39703	(-1)6.83660	(-1)7.32164	(-1)8.05946	(-1)8.74209
30	(-1)4.67473	(-1)5.50478	(-1)6.18641	(-1)6.51162	(-1)6.97679	(-1)7.36043	(-1)7.77828	(-1)8.40389	(-1)8.97297
40	(-1)5.63088	(-1)6.37018	(-1)6.95711	(-1)7.23155	(-1)7.61840	(-1)7.93275	(-1)8.27065	(-1)8.76847	(-1)9.21356
60	(-1)6.79968	(-1)7.38672	(-1)7.83703	(-1)8.04331	(-1)8.32979	(-1)8.55910	(-1)8.80231	(-1)9.15481	(-1)9.46448
120	(-1)8.23367	(-1)8.58439	(-1)8.84417	(-1)8.96070	(-1)9.12012	(-1)9.24578	(-1)9.37726	(-1)9.56467	(-1)9.72639
∞	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000

The numbers in parentheses indicate the power of ten by which the number following is to be multiplied, e.g., (-1)1.23456 = 0.123456.

PERCENTAGE POINTS OF THE BETA DISTRIBUTION

$\nu_1 = 5$

ν_2	$p=0.0001$	$p=0.001$	$p=0.005$	$p=0.01$	$p=0.025$	$p=0.05$	$p=0.1$	$p=0.25$	$p=0.5$
1	(-9)3.46978	(-7)3.46978	(-6)8.67453	(-5)3.46990	(-4)2.16908	(-4)8.68199	(-3)3.48189	(-2)2.21735	(-2)9.55258
1.1	(-8)1.88320	(-6)1.23902	(-5)2.31175	(-5)8.15255	(-4)4.31487	(-3)1.52319	(-3)5.39149	(-2)2.91930	(-1)1.11637
1.2	(-8)7.72638	(-6)3.58628	(-5)5.24341	(-4)1.66486	(-4)7.67105	(-3)2.43923	(-3)7.78302	(-2)3.68364	(-1)1.27557
1.3	(-7)2.55585	(-6)8.83081	(-4)1.05045	(-4)3.05196	(-3)1.25074	(-3)3.64112	(-2)1.06446	(-2)4.49786	(-1)1.43196
1.4	(-7)7.13794	(-5)1.91492	(-4)1.90874	(-4)5.13940	(-3)1.90516	(-3)5.14300	(-2)1.39523	(-2)5.35113	(-1)1.58498
1.5	(-6)1.74083	(-5)3.75063	(-4)3.20752	(-4)8.08583	(-3)2.74811	(-3)6.94982	(-2)1.76748	(-2)6.23429	(-1)1.73429
1.6	(-6)3.80271	(-5)6.76264	(-4)5.05810	(-3)1.20373	(-3)3.79219	(-3)9.05916	(-2)2.17772	(-2)7.13965	(-1)1.87969
1.7	(-6)7.58573	(-4)1.13895	(-4)7.56920	(-3)1.71214	(-3)5.04521	(-2)1.14630	(-2)2.62232	(-2)8.06079	(-1)2.02110
1.8	(-5)1.40288	(-4)1.81213	(-3)1.08425	(-3)2.34445	(-3)6.51070	(-2)1.41493	(-2)3.09765	(-2)8.99237	(-1)2.15850
1.9	(-5)2.43406	(-4)2.74819	(-3)1.49697	(-3)3.10904	(-3)8.18863	(-2)1.71032	(-2)3.60025	(-2)9.92995	(-1)2.29192
2	(-5)4.00012	(-4)4.00120	(-3)2.00301	(-3)4.01206	(-2)1.00760	(-2)2.03083	(-2)4.12685	(-1)1.08699	(-1)2.42142
2.2	(-5)9.45458	(-4)7.67259	(-3)3.32018	(-3)6.24792	(-2)1.44563	(-2)2.74015	(-2)5.24003	(-1)1.27452	(-1)2.66904
2.5	(-4)2.66562	(-3)1.68348	(-3)6.11887	(-2)1.06862	(-2)2.24181	(-2)3.94858	(-2)7.02107	(-1)1.55155	(-1)3.01369
3	(-4)9.54251	(-3)4.43853	(-2)1.30458	(-2)2.08065	(-2)3.87476	(-2)6.24125	(-1)1.01537	(-1)1.99369	(-1)3.52452
3.5	(-3)2.39163	(-3)8.94707	(-2)2.26131	(-2)3.38123	(-2)5.78523	(-2)8.74291	(-1)1.33453	(-1)2.40543	(-1)3.96787
4	(-3)4.79240	(-2)1.52347	(-2)3.43991	(-2)4.90140	(-2)7.87055	(-1)1.13378	(-1)1.64929	(-1)2.78522	(-1)4.35554
4.5	(-3)8.26707	(-2)2.31640	(-2)4.79234	(-2)6.57742	(-1)1.00527	(-1)1.39492	(-1)1.95398	(-1)3.13422	(-1)4.69705
5	(-2)1.28351	(-2)3.25178	(-2)6.27368	(-2)8.35630	(-1)1.22754	(-1)1.65280	(-1)2.24569	(-1)3.45464	(-1)5.00000
6	(-2)2.50279	(-2)5.45389	(-2)9.47591	(-1)1.20653	(-1)1.66955	(-1)2.14770	(-1)2.78583	(-1)4.01981	(-1)5.51335
7	(-2)4.06312	(-2)7.95192	(-1)1.28181	(-1)1.58006	(-1)2.09417	(-1)2.60634	(-1)3.26847	(-1)4.50008	(-1)5.93155
8	(-2)5.87480	(-1)1.06068	(-1)1.61587	(-1)1.94368	(-1)2.49327	(-1)3.02601	(-1)3.69818	(-1)4.91174	(-1)6.27868
9	(-2)7.85603	(-1)1.33198	(-1)1.94151	(-1)2.29097	(-1)2.86423	(-1)3.40802	(-1)4.08107	(-1)5.26776	(-1)6.57136
10	(-2)9.94020	(-1)1.60247	(-1)2.25419	(-1)2.61906	(-1)3.20714	(-1)3.75528	(-1)4.42317	(-1)5.57830	(-1)6.82144
12	(-1)1.42256	(-1)2.12538	(-1)2.83315	(-1)3.21529	(-1)3.81489	(-1)4.35898	(-1)5.00623	(-1)6.09304	(-1)7.22621
15	(-1)2.05183	(-1)2.83892	(-1)3.58331	(-1)3.97056	(-1)4.56176	(-1)5.08363	(-1)5.68934	(-1)6.67584	(-1)7.67121
20	(-1)2.98775	(-1)3.82389	(-1)4.56539	(-1)4.93664	(-1)5.48768	(-1)5.96046	(-1)6.49538	(-1)7.33951	(-1)8.16264
24	(-1)3.62052	(-1)4.45402	(-1)5.16925	(-1)5.52037	(-1)6.03408	(-1)6.46843	(-1)6.95346	(-1)7.70656	(-1)8.42805
30	(-1)4.40136	(-1)5.20205	(-1)5.86649	(-1)6.18619	(-1)6.64712	(-1)7.03107	(-1)7.45411	(-1)8.10016	(-1)8.70803
40	(-1)5.36959	(-1)6.09372	(-1)6.67443	(-1)6.94816	(-1)7.33694	(-1)7.65589	(-1)8.00254	(-1)8.52303	(-1)9.00378
60	(-1)6.57659	(-1)7.16139	(-1)7.61424	(-1)7.82325	(-1)8.11561	(-1)8.35174	(-1)8.60480	(-1)8.97822	(-1)9.31665
120	(-1)8.09005	(-1)8.44604	(-1)8.71199	(-1)8.83212	(-1)8.99753	(-1)9.12900	(-1)9.26789	(-1)9.46922	(-1)9.64816
∞	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000

The numbers in parentheses indicate the power of ten by which the number following is to be multiplied, e.g., (-1)1.23456 = 0.123456.

PERCENTAGE POINTS OF THE BETA DISTRIBUTION

$\nu_1 = 6$

ν_2	p=0.0001	p=0.001	p=0.005	p=0.01	p=0.025	p=0.05	p=0.1	p=0.25	p=0.5
1	(-9)2.84444	(-7)2.84445	(-6)7.11118	(-5)2.84455	(-4)1.77820	(-4)7.11786	(-3)2.85530	(-2)1.82151	(-2)7.90328
1.1	(-8)1.54660	(-6)1.01756	(-5)1.89856	(-5)6.69545	(-4)3.54379	(-3)1.25112	(-3)4.43003	(-2)2.40402	(-2)9.26681
1.2	(-8)6.35664	(-6)2.95050	(-5)4.31388	(-4)1.36973	(-4)6.31157	(-3)2.00725	(-3)6.40778	(-2)3.04090	(-1)1.06225
1.3	(-7)2.10639	(-6)7.27787	(-5)8.65734	(-4)2.51533	(-3)1.03091	(-3)3.00179	(-3)8.78111	(-2)3.72213	(-1)1.19624
1.4	(-7)5.89265	(-5)1.58085	(-4)1.57576	(-4)4.24297	(-3)1.57305	(-3)4.24769	(-2)1.15325	(-2)4.43902	(-1)1.32813
1.5	(-6)1.43950	(-5)3.10142	(-4)2.65239	(-4)6.68669	(-3)2.27297	(-3)5.75036	(-2)1.46383	(-2)5.18412	(-1)1.45757
1.6	(-6)3.14957	(-5)5.60114	(-4)4.18952	(-4)9.97081	(-3)3.14189	(-3)7.50911	(-2)1.80713	(-2)5.95113	(-1)1.58435
1.7	(-6)6.29278	(-5)9.44831	(-4)6.27946	(-3)1.42052	(-3)4.18709	(-3)9.51860	(-2)2.18031	(-2)6.73473	(-1)1.70833
1.8	(-5)1.16557	(-4)1.50561	(-4)9.00924	(-3)1.94825	(-3)5.41235	(-2)1.17700	(-2)2.58051	(-2)7.53047	(-1)1.82944
1.9	(-5)2.02538	(-4)2.28682	(-3)1.24578	(-3)2.58770	(-3)6.81846	(-2)1.42522	(-2)3.00498	(-2)8.33460	(-1)1.94766
2	(-5)3.33344	(-4)3.33445	(-3)1.66945	(-3)3.34451	(-3)8.40376	(-2)1.69524	(-2)3.45106	(-2)9.14397	(-1)2.06299
2.2	(-5)7.90157	(-4)6.41264	(-3)2.77554	(-3)5.22427	(-2)1.20960	(-2)2.29522	(-2)4.39840	(-1)1.07683	(-1)2.28516
2.5	(-4)2.23696	(-3)1.41292	(-3)5.13727	(-3)8.97517	(-2)1.88464	(-2)3.32406	(-2)5.92560	(-1)1.31909	(-1)2.59797
3	(-4)8.05925	(-3)3.74960	(-2)1.10282	(-2)1.75990	(-2)3.28198	(-2)5.29625	(-2)8.64344	(-1)1.71128	(-1)3.06947
3.5	(-3)2.03179	(-3)7.60454	(-2)1.92392	(-2)2.87912	(-2)4.93499	(-2)7.47483	(-1)1.14510	(-1)2.08258	(-1)3.48650
4	(-3)4.09365	(-2)1.30229	(-2)2.94448	(-2)4.19986	(-2)6.75860	(-2)9.76115	(-1)1.42559	(-1)2.43022	(-1)3.85728
4.5	(-3)7.09785	(-2)1.99078	(-2)4.12565	(-2)5.66941	(-2)8.68633	(-1)1.20875	(-1)1.70039	(-1)2.75402	(-1)4.18874
5	(-2)1.10728	(-2)2.80889	(-2)5.43009	(-2)7.24286	(-1)1.06687	(-1)1.44085	(-1)1.96641	(-1)3.05496	(-1)4.48665
6	(-2)2.17821	(-2)4.75519	(-2)8.28292	(-1)1.05640	(-1)1.46633	(-1)1.89255	(-1)2.46636	(-1)3.59436	(-1)5.00000
7	(-2)3.56417	(-2)6.99126	(-1)1.13027	(-1)1.39586	(-1)1.85619	(-1)2.31820	(-1)2.92101	(-1)4.06136	(-1)5.42634
8	(-2)5.19012	(-2)9.39539	(-1)1.43596	(-1)1.73070	(-1)2.22778	(-1)2.71338	(-1)3.33194	(-1)4.46802	(-1)5.78593
9	(-2)6.98524	(-1)1.18782	(-1)1.73735	(-1)2.05430	(-1)2.57744	(-1)3.07771	(-1)3.70292	(-1)4.82448	(-1)6.09323
10	(-2)8.89021	(-1)1.43774	(-1)2.02972	(-1)2.36324	(-1)2.90421	(-1)3.41261	(-1)4.03820	(-1)5.13903	(-1)6.35884
12	(-1)1.28533	(-1)1.92700	(-1)2.57831	(-1)2.93230	(-1)3.49144	(-1)4.00311	(-1)4.61785	(-1)5.66795	(-1)6.79481
15	(-1)1.87696	(-1)2.60642	(-1)3.30216	(-1)3.66662	(-1)4.22678	(-1)4.72548	(-1)5.31002	(-1)6.27824	(-1)7.28296
20	(-1)2.77495	(-1)3.56432	(-1)4.27050	(-1)4.62657	(-1)5.15862	(-1)5.61895	(-1)6.14478	(-1)6.98821	(-1)7.83314
24	(-1)3.39283	(-1)4.18831	(-1)4.87693	(-1)5.21736	(-1)5.71871	(-1)6.14610	(-1)6.62786	(-1)7.38781	(-1)8.13526
30	(-1)4.16608	(-1)4.93961	(-1)5.58708	(-1)5.90077	(-1)6.35591	(-1)6.73807	(-1)7.16298	(-1)7.82189	(-1)8.45782
40	(-1)5.14018	(-1)5.84937	(-1)6.42287	(-1)6.69500	(-1)7.08387	(-1)7.40533	(-1)7.75776	(-1)8.29472	(-1)8.80296
60	(-1)6.37631	(-1)6.95795	(-1)7.41189	(-1)7.62272	(-1)7.91931	(-1)8.16057	(-1)8.42125	(-1)8.81129	(-1)9.17310
120	(-1)7.95788	(-1)8.31817	(-1)8.58924	(-1)8.71237	(-1)8.88281	(-1)9.01916	(-1)9.16430	(-1)9.37742	(-1)9.57104
∞	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000

The numbers in parentheses indicate the power of ten by which the number following is to be multiplied, e.g., (-1)1.23456 = 0.123456.

PERCENTAGE POINTS OF THE BETA DISTRIBUTION

$\nu_1 = 7$

ν_2	p=0.0001	p=0.001	p=0.005	p=0.01	p=0.025	p=0.05	p=0.1	p=0.25	p=0.5
1	(-9)2.40957	(-7)2.40957	(-6)6.02399	(-5)2.40967	(-4)1.50636	(-4)6.02999	(-3)2.41931	(-2)1.54525	(-2)6.73783
1.1	(-8)1.31183	(-7)8.63098	(-5)1.61037	(-5)5.67912	(-4)3.00593	(-3)1.06130	(-3)3.75886	(-2)2.04295	(-2)7.91884
1.2	(-8)5.39850	(-6)2.50577	(-5)3.66366	(-4)1.16328	(-4)5.36048	(-3)1.70496	(-3)5.44462	(-2)2.58866	(-2)9.09825
1.3	(-7)1.79110	(-6)6.18849	(-5)7.36152	(-4)2.13886	(-4)8.76667	(-3)2.55306	(-3)7.47173	(-2)3.17410	(-1)1.02691
1.4	(-7)5.01668	(-5)1.34585	(-4)1.34153	(-4)3.61235	(-3)1.33937	(-3)3.61741	(-3)9.82672	(-2)3.79202	(-1)1.14265
1.5	(-6)1.22697	(-5)2.64352	(-4)2.26082	(-4)5.69971	(-3)1.93771	(-3)4.90345	(-2)1.24907	(-2)4.43618	(-1)1.25672
1.6	(-6)2.68767	(-5)4.77973	(-4)3.57522	(-4)8.50918	(-3)2.68174	(-3)6.41145	(-2)1.54418	(-2)5.10128	(-1)1.36891
1.7	(-6)5.37605	(-5)8.07194	(-4)5.36492	(-3)1.21371	(-3)3.57821	(-3)8.13763	(-2)1.86569	(-2)5.78282	(-1)1.47907
1.8	(-6)9.96883	(-4)1.28773	(-4)7.70590	(-3)1.66653	(-3)4.63088	(-2)1.00753	(-2)2.21124	(-2)6.47697	(-1)1.58710
1.9	(-5)1.73417	(-4)1.95805	(-3)1.06676	(-3)2.21605	(-3)5.84096	(-2)1.22156	(-2)2.57855	(-2)7.18053	(-1)1.69297
2	(-5)2.85724	(-4)2.85816	(-3)1.43113	(-3)2.86741	(-3)7.20756	(-2)1.45484	(-2)2.96544	(-2)7.89076	(-1)1.79665
2.2	(-5)6.78707	(-4)5.50837	(-3)2.38451	(-3)4.48902	(-2)1.03986	(-2)1.97467	(-2)3.78985	(-2)9.32237	(-1)1.99744
2.5	(-4)1.92726	(-3)1.21741	(-3)4.42754	(-3)7.73725	(-2)1.62580	(-2)2.87042	(-2)5.12633	(-1)1.14726	(-1)2.28264
3	(-4)6.97649	(-3)3.24647	(-3)9.55296	(-2)1.52515	(-2)2.84709	(-2)4.60072	(-2)7.52571	(-1)1.49913	(-1)2.71807
3.5	(-3)1.76661	(-3)6.61434	(-2)1.67464	(-2)2.50761	(-2)4.30394	(-2)6.52994	(-1)1.00304	(-1)1.83647	(-1)3.10886
4	(-3)3.57412	(-2)1.13764	(-2)2.57480	(-2)3.67545	(-2)5.92426	(-2)8.57275	(-1)1.25578	(-1)2.15599	(-1)3.46086
4.5	(-3)6.22131	(-2)1.74626	(-2)3.62353	(-2)4.98408	(-2)7.65054	(-1)1.06691	(-1)1.50571	(-1)2.45676	(-1)3.77925
5	(-3)9.74136	(-2)2.47355	(-2)4.78913	(-2)6.39480	(-2)9.43903	(-1)1.27776	(-1)1.74976	(-1)2.73904	(-1)4.06845
6	(-2)1.92948	(-2)4.21811	(-2)7.36184	(-2)9.40145	(-1)1.30809	(-1)1.69269	(-1)2.21392	(-1)3.25157	(-1)4.57366
7	(-2)3.17693	(-2)6.24276	(-1)1.01159	(-1)1.25112	(-1)1.66808	(-1)2.08897	(-1)2.64206	(-1)3.70213	(-1)5.00000
8	(-2)4.65261	(-2)8.44004	(-1)1.29326	(-1)1.56118	(-1)2.01512	(-1)2.46129	(-1)3.03387	(-1)4.09965	(-1)5.36446
9	(-2)6.29451	(-1)1.07289	(-1)1.57358	(-1)1.86374	(-1)2.34501	(-1)2.80818	(-1)3.39147	(-1)4.45207	(-1)5.67954
10	(-2)8.04945	(-1)1.30511	(-1)1.84783	(-1)2.15513	(-1)2.65613	(-1)3.13006	(-1)3.71778	(-1)4.76616	(-1)5.95459
12	(-1)1.17363	(-1)1.76455	(-1)2.36819	(-1)2.69805	(-1)3.22186	(-1)3.70445	(-1)4.28886	(-1)5.30087	(-1)6.41163
15	(-1)1.73177	(-1)2.41213	(-1)3.06555	(-1)3.40980	(-1)3.94182	(-1)4.41873	(-1)4.98219	(-1)5.92817	(-1)6.93176
20	(-1)2.59391	(-1)3.34203	(-1)4.01621	(-1)4.35814	(-1)4.87188	(-1)5.31942	(-1)5.83466	(-1)6.67199	(-1)7.52890
24	(-1)3.19633	(-1)3.95750	(-1)4.62128	(-1)4.95136	(-1)5.44012	(-1)5.85960	(-1)6.33607	(-1)7.09734	(-1)7.86185
30	(-1)3.95976	(-1)4.70802	(-1)5.33894	(-1)5.64637	(-1)6.09481	(-1)6.47383	(-1)6.89839	(-1)7.56494	(-1)8.22136
40	(-1)4.93534	(-1)5.62993	(-1)6.19563	(-1)6.46556	(-1)6.85325	(-1)7.17577	(-1)7.53187	(-1)8.08089	(-1)8.61071
60	(-1)6.19382	(-1)6.77163	(-1)7.22563	(-1)7.43759	(-1)7.73719	(-1)7.98235	(-1)8.24904	(-1)8.65253	(-1)9.03376
120	(-1)7.83464	(-1)8.19847	(-1)8.47385	(-1)8.59954	(-1)8.77427	(-1)8.91482	(-1)9.06534	(-1)9.28866	(-1)9.49506
∞	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000

The numbers in parentheses indicate the power of ten by which the number following is to be multiplied, e.g., (-1)1.23456 = 0.123456.

PERCENTAGE POINTS OF THE BETA DISTRIBUTION

$\nu_1 = 8$

ν_2	$p = 0.0001$	$p = 0.001$	$p = 0.005$	$p = 0.01$	$p = 0.025$	$p = 0.05$	$p = 0.1$	$p = 0.25$	$p = 0.5$
1	(-9)2.08980	(-7)2.08980	(-6)5.22454	(-5)2.08988	(-4)1.30646	(-4)5.22996	(-3)2.09858	(-2)1.34159	(-2)5.87108
1.1	(-8)1.13882	(-7)7.49271	(-5)1.39799	(-5)4.93017	(-4)2.60956	(-4)9.21402	(-3)3.26396	(-2)1.77597	(-2)6.91226
1.2	(-8)4.69093	(-6)2.17735	(-5)3.18348	(-4)1.01082	(-4)4.65806	(-3)1.48166	(-3)4.73273	(-2)2.25329	(-2)7.95548
1.3	(-7)1.55778	(-6)5.38234	(-5)6.40260	(-4)1.86027	(-4)7.62511	(-3)2.22086	(-3)6.50164	(-2)2.76649	(-2)8.99451
1.4	(-7)4.36713	(-5)1.17159	(-4)1.16784	(-4)3.14470	(-3)1.16605	(-3)3.14978	(-3)8.55991	(-2)3.30937	(-1)1.00250
1.5	(-6)1.06905	(-5)2.30329	(-4)1.96988	(-4)4.96633	(-3)1.68853	(-3)4.27373	(-2)1.08920	(-2)3.87659	(-1)1.10439
1.6	(-6)2.34381	(-5)4.16823	(-4)3.11788	(-4)7.42093	(-3)2.33905	(-3)5.59349	(-2)1.34797	(-2)4.46357	(-1)1.20491
1.7	(-6)4.69229	(-5)7.04533	(-4)4.68273	(-3)1.05942	(-3)3.12383	(-3)7.10634	(-2)1.63035	(-2)5.06642	(-1)1.30391
1.8	(-6)8.70831	(-4)1.12491	(-4)6.73184	(-3)1.45596	(-3)4.04651	(-3)8.80695	(-2)1.93437	(-2)5.68184	(-1)1.40130
1.9	(-5)1.51616	(-4)1.71191	(-4)9.32711	(-3)1.93773	(-3)5.10853	(-2)1.06881	(-2)2.25808	(-2)6.30700	(-1)1.49702
2	(-5)2.50009	(-4)2.50094	(-3)1.25235	(-3)2.50943	(-3)6.30946	(-2)1.27415	(-2)2.59963	(-2)6.93951	(-1)1.59104
2.2	(-5)5.94824	(-4)4.82772	(-3)2.09010	(-3)3.93528	(-3)9.11927	(-2)1.73273	(-2)3.32930	(-2)8.21875	(-1)1.77389
2.5	(-4)1.69299	(-3)1.06949	(-3)3.89034	(-3)6.79984	(-2)1.42956	(-2)2.52587	(-2)4.51730	(-1)1.01506	(-1)2.03537
3	(-4)6.15093	(-3)2.86273	(-3)8.42686	(-2)1.34581	(-2)2.51427	(-2)4.06714	(-2)6.66469	(-1)1.33387	(-1)2.43864
3.5	(-3)1.56292	(-3)5.85331	(-2)1.48281	(-2)2.22142	(-2)3.81666	(-2)5.79813	(-2)8.92487	(-1)1.64255	(-1)2.80480
4	(-3)3.17233	(-2)1.01018	(-2)2.28812	(-2)3.26821	(-2)5.27450	(-2)7.64404	(-1)1.12235	(-1)1.93764	(-1)3.13810
4.5	(-3)5.53902	(-2)1.55567	(-2)3.23129	(-2)4.44782	(-2)6.83739	(-2)9.55126	(-1)1.35136	(-1)2.21779	(-1)3.44246
5	(-3)8.69860	(-2)2.21047	(-2)4.28494	(-2)5.72643	(-2)8.46634	(-1)1.14820	(-1)1.57658	(-1)2.48281	(-1)3.72132
6	(-2)1.73247	(-2)3.79164	(-2)6.62792	(-2)8.47300	(-1)1.18117	(-1)1.53161	(-1)2.00909	(-1)2.96917	(-1)4.21407
7	(-2)2.86702	(-2)5.64188	(-2)9.15932	(-1)1.13415	(-1)1.51532	(-1)1.90187	(-1)2.41274	(-1)3.40219	(-1)4.63554
8	(-2)4.21841	(-2)7.66545	(-1)1.17704	(-1)1.42270	(-1)1.84052	(-1)2.25322	(-1)2.78602	(-1)3.78848	(-1)5.00000
9	(-2)5.73173	(-2)9.78857	(-1)1.43893	(-1)1.70658	(-1)2.15230	(-1)2.58349	(-1)3.12986	(-1)4.13430	(-1)5.31822
10	(-2)7.35904	(-1)1.19570	(-1)1.69700	(-1)1.98202	(-1)2.44863	(-1)2.89241	(-1)3.44623	(-1)4.44514	(-1)5.59845
12	(-1)1.08064	(-1)1.62860	(-1)2.19136	(-1)2.50026	(-1)2.99295	(-1)3.44941	(-1)4.00580	(-1)4.98008	(-1)6.06915
15	(-1)1.60881	(-1)2.24667	(-1)2.86288	(-1)3.18907	(-1)3.69550	(-1)4.15209	(-1)4.69509	(-1)5.61693	(-1)6.61269
20	(-1)2.43730	(-1)3.14862	(-1)3.79364	(-1)4.12241	(-1)4.61868	(-1)5.05350	(-1)5.55737	(-1)6.38515	(-1)7.24724
24	(-1)3.02417	(-1)3.75412	(-1)4.39472	(-1)4.71486	(-1)5.19109	(-1)5.60216	(-1)6.07207	(-1)6.83089	(-1)7.60607
30	(-1)3.77637	(-1)4.50103	(-1)5.11592	(-1)5.41702	(-1)5.85823	(-1)6.23321	(-1)6.65587	(-1)7.32633	(-1)7.99762
40	(-1)4.75026	(-1)5.43063	(-1)5.98817	(-1)6.25549	(-1)6.64111	(-1)6.96362	(-1)7.32186	(-1)7.87966	(-1)8.42657
60	(-1)6.02580	(-1)6.59931	(-1)7.05256	(-1)7.26513	(-1)7.56684	(-1)7.81497	(-1)8.08640	(-1)8.50092	(-1)8.89851
120	(-1)7.71869	(-1)8.08543	(-1)8.36449	(-1)8.49237	(-1)8.67082	(-1)8.81501	(-1)8.97024	(-1)9.20252	(-1)9.42023
∞	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000

The numbers in parentheses indicate the power of ten by which the number following is to be multiplied, e.g., (-1)1.23456 = 0.123456.

PERCENTAGE POINTS OF THE BETA DISTRIBUTION

$\nu_1 = 9$

ν_2	$p = 0.0001$	$p = 0.001$	$p = 0.005$	$p = 0.01$	$p = 0.025$	$p = 0.05$	$p = 0.1$	$p = 0.25$	$p = 0.5$
1	(-9)1.84483	(-7)1.84483	(-6)4.61212	(-5)1.84491	(-4)1.15333	(-4)4.61704	(-3)1.85282	(-2)1.18529	(-2)5.20147
1.1	(-8)1.00607	(-7)6.61929	(-5)1.23503	(-5)4.35547	(-4)2.30540	(-4)8.14039	(-3)2.88404	(-2)1.57062	(-2)6.13222
1.2	(-8)4.14712	(-6)1.92493	(-5)2.81443	(-5)8.93645	(-4)4.11817	(-3)1.31001	(-3)4.18525	(-2)1.99474	(-2)7.06719
1.3	(-7)1.37817	(-6)4.76178	(-5)5.66443	(-4)1.64581	(-4)6.74627	(-3)1.96506	(-3)5.75422	(-2)2.45153	(-2)8.00079
1.4	(-7)3.86634	(-5)1.03724	(-4)1.03393	(-4)2.78414	(-3)1.03241	(-3)2.78910	(-3)7.58211	(-2)2.93557	(-2)8.92905
1.5	(-7)9.47121	(-5)2.04059	(-4)1.74522	(-4)4.40001	(-3)1.49609	(-3)3.78722	(-3)9.65579	(-2)3.44221	(-2)9.84917
1.6	(-6)2.07790	(-5)3.69535	(-4)2.76420	(-4)6.57930	(-3)2.07396	(-3)4.96049	(-2)1.19597	(-2)3.96744	(-1)1.07592
1.7	(-6)4.16274	(-5)6.25026	(-4)4.15437	(-4)9.39917	(-3)2.77178	(-3)6.30691	(-2)1.44771	(-2)4.50783	(-1)1.16576
1.8	(-6)7.73067	(-5)9.98624	(-4)5.97632	(-3)1.29261	(-3)3.59305	(-3)7.82213	(-2)1.71909	(-2)5.06046	(-1)1.25436
1.9	(-5)1.34683	(-4)1.52073	(-4)8.28585	(-3)1.72150	(-3)4.53929	(-3)9.50014	(-2)2.00844	(-2)5.62285	(-1)1.34164
2	(-5)2.22231	(-4)2.22309	(-3)1.11328	(-3)2.23092	(-3)5.61038	(-2)1.13338	(-2)2.31415	(-2)6.19287	(-1)1.42756
2.2	(-5)5.29402	(-4)4.29684	(-3)1.86043	(-3)3.50320	(-3)8.12033	(-2)1.54362	(-2)2.96859	(-2)7.34877	(-1)1.59525
2.5	(-4)1.50956	(-4)9.53657	(-3)3.46951	(-3)6.06524	(-2)1.27564	(-2)2.25525	(-2)4.03775	(-2)9.10200	(-1)1.83633
3	(-4)5.50048	(-3)2.56030	(-3)7.53879	(-2)1.20430	(-2)2.25128	(-2)3.64473	(-2)5.98087	(-1)1.20148	(-1)2.21120
3.5	(-3)1.40150	(-3)5.24991	(-2)1.33055	(-2)1.99407	(-2)3.42886	(-2)5.21438	(-2)8.03964	(-1)1.48578	(-1)2.55480
4	(-3)2.85216	(-3)9.08532	(-2)2.05918	(-2)2.94264	(-2)4.75386	(-2)6.89786	(-1)1.01469	(-1)1.75960	(-1)2.87028
4.5	(-3)4.99247	(-2)1.40283	(-2)2.91619	(-2)4.01648	(-2)6.18158	(-2)8.64694	(-1)1.22592	(-1)2.02142	(-1)3.16065
5	(-3)7.85915	(-2)1.99840	(-2)3.87763	(-2)5.18565	(-2)7.67701	(-1)1.04271	(-1)1.43486	(-1)2.27071	(-1)3.42864
6	(-2)1.57239	(-2)3.44444	(-2)6.02873	(-2)7.71356	(-1)1.07699	(-1)1.39889	(-1)1.83938	(-1)2.73232	(-1)3.90677
7	(-2)2.61307	(-2)5.14823	(-2)8.37076	(-1)1.03752	(-1)1.38864	(-1)1.74607	(-1)2.22066	(-1)3.14777	(-1)4.32046
8	(-2)3.85979	(-2)7.02378	(-1)1.08039	(-1)1.30728	(-1)1.69437	(-1)2.07829	(-1)2.57639	(-1)3.52191	(-1)4.68178
9	(-2)5.26357	(-2)9.00363	(-1)1.32607	(-1)1.57452	(-1)1.98966	(-1)2.39298	(-1)2.90669	(-1)3.85966	(-1)5.00000
10	(-2)6.78088	(-1)1.10373	(-1)1.56966	(-1)1.83548	(-1)2.27218	(-1)2.68937	(-1)3.21277	(-1)4.16554	(-1)5.28237
12	(-1)1.00183	(-1)1.51290	(-1)2.04015	(-1)2.33066	(-1)2.79573	(-1)3.22864	(-1)3.75920	(-1)4.69697	(-1)5.76128
15	(-1)1.50306	(-1)2.10370	(-1)2.68686	(-1)2.99682	(-1)3.47992	(-1)3.91761	(-1)4.44104	(-1)5.33800	(-1)6.32157
20	(-1)2.30005	(-1)2.97827	(-1)3.59661	(-1)3.91312	(-1)4.39281	(-1)4.81518	(-1)5.30734	(-1)6.12337	(-1)6.98579
24	(-1)2.87158	(-1)3.57294	(-1)4.19185	(-1)4.50249	(-1)4.96644	(-1)5.36886	(-1)5.83143	(-1)6.58518	(-1)7.36631
30	(-1)3.61168	(-1)4.31423	(-1)4.91366	(-1)5.20846	(-1)5.64212	(-1)6.01247	(-1)6.43216	(-1)7.10377	(-1)7.78565
40	(-1)4.58152	(-1)5.24808	(-1)5.79728	(-1)6.06170	(-1)6.44460	(-1)6.76633	(-1)7.12554	(-1)7.68958	(-1)8.25006
60	(-1)5.86991	(-1)6.43876	(-1)6.89066	(-1)7.10344	(-1)7.40652	(-1)7.65688	(-1)7.93208	(-1)8.35570	(-1)8.76720
120	(-1)7.60888	(-1)7.97803	(-1)8.26022	(-1)8.39001	(-1)8.57170	(-1)8.71910	(-1)8.87848	(-1)9.11872	(-1)9.34655
∞	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000

The numbers in parentheses indicate the power of ten by which the number following is to be multiplied, e.g., (-1)1.23456 = 0.123456.

PERCENTAGE POINTS OF THE BETA DISTRIBUTION

$\nu_1 = 10$

ν_2	$p = 0.0001$	$p = 0.001$	$p = 0.005$	$p = 0.01$	$p = 0.025$	$p = 0.05$	$p = 0.1$	$p = 0.25$	$p = 0.5$
1	(-9)1.65120	(-7)1.65120	(-6)4.12804	(-5)1.65127	(-4)1.03228	(-4)4.13254	(-3)1.65851	(-2)1.06155	(-2)4.66872
1.1	(-9)9.01004	(-7)5.92801	(-5)1.10605	(-5)3.90062	(-4)2.06466	(-4)7.29057	(-3)2.58325	(-2)1.40777	(-2)5.51009
1.2	(-8)3.71617	(-6)1.72490	(-5)2.52197	(-5)8.00786	(-4)3.69031	(-3)1.17396	(-3)3.75116	(-2)1.78935	(-2)6.35702
1.3	(-7)1.23567	(-6)4.26940	(-5)5.07872	(-4)1.47564	(-4)6.04890	(-3)1.76205	(-3)5.16077	(-2)2.20088	(-2)7.20444
1.4	(-7)3.46850	(-6)9.30513	(-5)9.27548	(-4)2.49770	(-4)9.26225	(-3)2.50247	(-3)6.80461	(-2)2.63757	(-2)8.04873
1.5	(-7)8.50136	(-5)1.83164	(-4)1.56652	(-4)3.94954	(-3)1.34299	(-3)3.40007	(-3)8.67137	(-2)3.09530	(-2)8.88730
1.6	(-6)1.86615	(-5)3.31877	(-4)2.48254	(-4)5.90902	(-3)1.86281	(-3)4.45612	(-2)1.07475	(-2)3.57049	(-2)9.71829
1.7	(-6)3.74055	(-5)5.61636	(-4)3.73311	(-4)8.44629	(-3)2.49102	(-3)5.66908	(-2)1.30184	(-2)4.06010	(-1)1.05404
1.8	(-6)6.95033	(-5)8.97826	(-4)5.37322	(-3)1.16221	(-3)3.23095	(-3)7.03534	(-2)1.54692	(-2)4.56153	(-1)1.13526
1.9	(-5)1.21152	(-4)1.36795	(-4)7.45370	(-3)1.54868	(-3)4.08417	(-3)8.54978	(-2)1.80850	(-2)5.07255	(-1)1.21543
2	(-5)2.00008	(-4)2.00080	(-3)1.00201	(-3)2.00805	(-3)5.05076	(-2)1.02062	(-2)2.08516	(-2)5.59125	(-1)1.29449
2.2	(-5)4.76949	(-4)3.87119	(-3)1.67625	(-3)3.15665	(-3)7.31870	(-2)1.39174	(-2)2.67842	(-2)6.64534	(-1)1.44923
2.5	(-4)1.36202	(-4)8.60483	(-3)3.13092	(-3)5.47401	(-2)1.15167	(-2)2.03706	(-2)3.65032	(-2)8.24983	(-1)1.67269
3	(-4)4.97467	(-3)2.31577	(-3)6.82038	(-2)1.08977	(-2)2.03819	(-2)3.30196	(-2)5.42455	(-1)1.09303	(-1)2.02249
3.5	(-3)1.27039	(-3)4.75962	(-2)1.20674	(-2)1.80907	(-2)3.11282	(-2)4.73775	(-2)7.31465	(-1)1.35638	(-1)2.34564
4	(-3)2.59093	(-3)8.25549	(-2)1.87207	(-2)2.67632	(-2)4.32719	(-2)6.28499	(-2)9.25953	(-1)1.61163	(-1)2.64450
4.5	(-3)4.54463	(-2)1.27750	(-2)2.65741	(-2)3.66183	(-2)5.64124	(-2)7.89997	(-1)1.12191	(-1)1.85712	(-1)2.92141
5	(-3)7.16847	(-2)1.82371	(-2)3.54153	(-2)4.73888	(-2)7.02331	(-2)9.55098	(-1)1.31669	(-1)2.09218	(-1)3.17856
6	(-2)1.43965	(-2)3.15608	(-2)5.52993	(-2)7.08038	(-2)9.89883	(-1)1.28756	(-1)1.69638	(-1)2.53074	(-1)3.64116
7	(-2)2.40098	(-2)4.73509	(-2)7.70897	(-2)9.56276	(-1)1.28179	(-1)1.61420	(-1)2.05730	(-1)2.92911	(-1)4.04541
8	(-2)3.55831	(-2)6.48295	(-2)9.98672	(-1)1.20950	(-1)1.57013	(-1)1.92903	(-1)2.39662	(-1)3.29083	(-1)4.40155
9	(-2)4.86756	(-2)8.33773	(-1)1.22999	(-1)1.46186	(-1)1.85038	(-1)2.22922	(-1)2.71386	(-1)3.61978	(-1)4.71763
10	(-2)6.28902	(-1)1.02523	(-1)1.46056	(-1)1.70965	(-1)2.12009	(-1)2.51368	(-1)3.00969	(-1)3.91964	(-1)5.00000
12	(-2)9.34092	(-1)1.41309	(-1)1.90916	(-1)2.18338	(-1)2.62378	(-1)3.03537	(-1)3.54216	(-1)4.44507	(-1)5.48306
15	(-1)1.41098	(-1)1.97869	(-1)2.53227	(-1)2.82755	(-1)3.28933	(-1)3.70946	(-1)4.21429	(-1)5.08634	(-1)6.05494
20	(-1)2.17852	(-1)2.82676	(-1)3.42056	(-1)3.72565	(-1)4.18965	(-1)4.59995	(-1)5.08035	(-1)5.88324	(-1)6.74249
24	(-1)2.73505	(-1)3.41011	(-1)4.00870	(-1)4.31029	(-1)4.76229	(-1)5.15604	(-1)5.61078	(-1)6.35760	(-1)7.14114
30	(-1)3.46257	(-1)4.14434	(-1)4.72890	(-1)5.01748	(-1)5.44347	(-1)5.80880	(-1)6.22473	(-1)6.89542	(-1)7.58457
40	(-1)4.42659	(-1)5.07976	(-1)5.62054	(-1)5.88188	(-1)6.26158	(-1)6.58193	(-1)6.94121	(-1)7.50951	(-1)8.08076
60	(-1)5.72440	(-1)6.28834	(-1)6.73841	(-1)6.95108	(-1)7.25497	(-1)7.50695	(-1)7.78512	(-1)8.21627	(-1)8.63967
120	(-1)7.50435	(-1)7.87548	(-1)8.16038	(-1)8.29183	(-1)8.47637	(-1)8.62660	(-1)8.78968	(-1)9.03703	(-1)9.27398
∞	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000

The numbers in parentheses indicate the power of ten by which the number following is to be multiplied, e.g., (-1)1.23456 = 0.123456.

PERCENTAGE POINTS OF THE BETA DISTRIBUTION

$\nu_1 = 12$

ν_2	$p=0.0001$	$p=0.001$	$p=0.005$	$p=0.01$	$p=0.025$	$p=0.05$	$p=0.1$	$p=0.25$	$p=0.5$
1	(-9)1.36463	(-7)1.36463	(-6)3.41160	(-5)1.36469	(-5)8.53133	(-4)3.41545	(-3)1.37087	(-3)8.78142	(-2)3.87462
1.1	(-9)7.45283	(-7)4.90347	(-6)9.14893	(-5)3.22649	(-4)1.70786	(-4)6.03093	(-3)2.13727	(-2)1.16591	(-2)4.58028
1.2	(-8)3.07656	(-6)1.42802	(-5)2.08791	(-5)6.62963	(-4)3.05525	(-4)9.72004	(-3)3.10655	(-2)1.48370	(-2)5.29278
1.3	(-7)1.02386	(-6)3.53759	(-5)4.20821	(-4)1.22272	(-4)5.01233	(-3)1.46024	(-3)4.27809	(-2)1.82714	(-2)6.00789
1.4	(-7)2.87640	(-6)7.71667	(-5)7.69214	(-4)2.07136	(-4)7.68172	(-3)2.07573	(-3)5.64632	(-2)2.19234	(-2)6.72254
1.5	(-7)7.05599	(-5)1.52023	(-4)1.30020	(-4)3.27816	(-3)1.11479	(-3)2.82283	(-3)7.20246	(-2)2.57594	(-2)7.43451
1.6	(-6)1.55015	(-5)2.75680	(-4)2.06221	(-4)4.90868	(-3)1.54762	(-3)3.70296	(-3)8.93584	(-2)2.97504	(-2)8.14217
1.7	(-6)3.10969	(-5)4.66916	(-4)3.10360	(-4)7.02229	(-3)2.07133	(-3)4.71523	(-2)1.08348	(-2)3.38714	(-2)8.84433
1.8	(-6)5.78278	(-5)7.47010	(-4)4.47080	(-4)9.67069	(-3)2.68893	(-3)5.85699	(-2)1.28875	(-2)3.81011	(-2)9.54010
1.9	(-5)1.00880	(-4)1.13908	(-4)6.20691	(-3)1.28972	(-3)3.40196	(-3)7.12432	(-2)1.50819	(-2)4.24212	(-1)1.02289
2	(-5)1.66674	(-4)1.66736	(-4)8.35075	(-3)1.67365	(-3)4.21074	(-3)8.51244	(-2)1.74068	(-2)4.68157	(-1)1.09101
2.2	(-5)3.98075	(-4)3.23109	(-3)1.39923	(-3)2.63530	(-3)6.11206	(-2)1.16292	(-2)2.24046	(-2)5.57757	(-1)1.22490
2.5	(-4)1.13936	(-4)7.19854	(-3)2.61971	(-3)4.58111	(-3)9.64291	(-2)1.70686	(-2)3.06271	(-2)6.94883	(-1)1.41958
3	(-4)4.17656	(-3)1.94452	(-3)5.72903	(-3)9.15690	(-2)1.71391	(-2)2.77943	(-2)4.57405	(-2)9.25923	(-1)1.72751
3.5	(-3)1.07030	(-3)4.01103	(-2)1.01752	(-2)1.52612	(-2)2.62865	(-2)4.00599	(-2)6.19773	(-1)1.15527	(-1)2.01550
4	(-3)2.19016	(-3)6.98151	(-2)1.58443	(-2)2.26651	(-2)3.66926	(-2)5.33755	(-2)7.88234	(-1)1.37974	(-1)2.28490
4.5	(-3)3.85411	(-2)1.08405	(-2)2.25733	(-2)3.11289	(-2)4.80279	(-2)6.73755	(-2)9.59337	(-1)1.59766	(-1)2.53718
5	(-3)6.09838	(-2)1.55272	(-2)3.01907	(-2)4.04337	(-2)6.00279	(-2)8.17896	(-1)1.13074	(-1)1.80817	(-1)2.77379
6	(-2)1.23211	(-2)2.70434	(-2)4.74640	(-2)6.08396	(-2)8.52334	(-1)1.11113	(-1)1.46855	(-1)2.20577	(-1)3.20519
7	(-2)2.06652	(-2)4.08192	(-2)6.65925	(-2)8.27139	(-1)1.11129	(-1)1.40291	(-1)1.79407	(-1)2.57241	(-1)3.58837
8	(-2)3.07906	(-2)5.62059	(-2)8.67877	(-1)1.05262	(-1)1.36996	(-1)1.68750	(-1)2.10396	(-1)2.90986	(-1)3.93085
9	(-2)4.23330	(-2)7.26744	(-1)1.07490	(-1)1.27955	(-1)1.62400	(-1)1.96184	(-1)2.39702	(-1)3.22049	(-1)4.23872
10	(-2)5.49568	(-2)8.98132	(-1)1.28311	(-1)1.50443	(-1)1.87086	(-1)2.22441	(-1)2.67318	(-1)3.50681	(-1)4.51694
12	(-2)8.23433	(-1)1.24929	(-1)1.69312	(-1)1.93977	(-1)2.33794	(-1)2.71250	(-1)3.17719	(-1)4.01580	(-1)5.00000
15	(-1)1.25807	(-1)1.77002	(-1)2.27283	(-1)2.54259	(-1)2.96681	(-1)3.35542	(-1)2.82606	(-1)4.64974	(-1)5.58378
20	(-1)1.97231	(-1)2.56822	(-1)3.11843	(-1)3.40290	(-1)3.83804	(-1)4.22556	(-1)4.68292	(-1)5.45736	(-1)6.30330
24	(-1)2.50026	(-1)3.12846	(-1)3.69009	(-1)3.97487	(-1)4.40417	(-1)4.78082	(-1)5.21929	(-1)5.94873	(-1)6.72962
30	(-1)3.20203	(-1)3.84579	(-1)4.40239	(-1)4.67894	(-1)5.08954	(-1)5.44418	(-1)5.85110	(-1)6.51560	(-1)7.21195
40	(-1)4.15076	(-1)4.77842	(-1)5.30242	(-1)5.55726	(-1)5.92963	(-1)6.24595	(-1)6.60341	(-1)7.17576	(-1)7.76209
60	(-1)5.45942	(-1)6.01303	(-1)6.45839	(-1)6.67012	(-1)6.97429	(-1)7.22815	(-1)7.51041	(-1)7.95294	(-1)8.39537
120	(-1)7.30870	(-1)7.68276	(-1)7.97198	(-1)8.10616	(-1)8.29544	(-1)8.45045	(-1)8.61980	(-1)8.87937	(-1)9.13215
∞	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000

The numbers in parentheses indicate the power of ten by which the number following is to be multiplied, e.g., (-1)1.23456 = 0.123456.

PERCENTAGE POINTS OF THE BETA DISTRIBUTION

$\nu_1 = 15$

ν_2	$p=0.0001$	$p=0.001$	$p=0.005$	$p=0.01$	$p=0.025$	$p=0.05$	$p=0.1$	$p=0.25$	$p=0.5$
1	(-9)1.08267	(-7)1.08267	(-6)2.70670	(-5)1.08272	(-5)6.76865	(-4)2.70984	(-3)1.08778	(-3)6.97342	(-2)3.08671
1.1	(-9)5.91806	(-7)3.89369	(-6)7.26488	(-5)2.56206	(-4)1.35618	(-4)4.78927	(-3)1.69751	(-3)9.26941	(-2)3.65473
1.2	(-8)2.44510	(-6)1.13492	(-5)1.65937	(-5)5.26894	(-4)2.42824	(-4)7.72579	(-3)2.46973	(-2)1.18100	(-2)4.23003
1.3	(-8)8.14409	(-6)2.81390	(-5)3.34734	(-5)9.72595	(-4)3.98715	(-3)1.16169	(-3)3.40442	(-2)1.45612	(-2)4.80921
1.4	(-7)2.28990	(-6)6.14323	(-5)6.12375	(-4)1.64904	(-4)6.11589	(-3)1.65284	(-3)4.49764	(-2)1.74928	(-2)5.38980
1.5	(-7)5.62195	(-5)1.21126	(-4)1.03597	(-4)2.61201	(-4)8.88325	(-3)2.24977	(-3)5.74290	(-2)2.05788	(-2)5.96998
1.6	(-6)1.23612	(-5)2.19834	(-4)1.64449	(-4)3.91448	(-3)1.23430	(-3)2.95394	(-3)7.13214	(-2)2.37963	(-2)6.54840
1.7	(-6)2.48177	(-5)3.72636	(-4)2.47698	(-4)5.60471	(-3)1.65343	(-3)3.76491	(-3)8.65653	(-2)2.71260	(-2)7.12405
1.8	(-6)4.61884	(-5)5.96658	(-4)3.57109	(-4)7.72494	(-3)2.14829	(-3)4.68088	(-2)1.03070	(-2)3.05510	(-2)7.69619
1.9	(-6)8.06401	(-5)9.10548	(-4)4.96189	(-3)1.03109	(-3)2.72034	(-3)5.69901	(-2)1.20743	(-2)3.40569	(-2)8.26423
2	(-5)1.33339	(-4)1.33391	(-4)6.68116	(-3)1.33915	(-3)3.37002	(-3)6.81577	(-2)1.39499	(-2)3.76313	(-2)8.82775
2.2	(-5)3.18962	(-4)2.58901	(-3)1.12130	(-3)2.11210	(-3)4.90030	(-3)9.32879	(-2)1.79921	(-2)4.49434	(-2)9.94002
2.5	(-5)9.15029	(-4)5.78156	(-3)2.10444	(-3)3.68075	(-3)7.75157	(-2)1.37309	(-2)2.46713	(-2)5.61965	(-1)1.15688
3	(-4)3.36676	(-3)1.56772	(-3)4.62057	(-3)7.38765	(-2)1.38382	(-2)2.24647	(-2)3.70349	(-2)7.53244	(-1)1.41732
3.5	(-4)8.65884	(-3)3.24587	(-3)8.23894	(-2)1.23631	(-2)2.13170	(-2)3.25296	(-2)5.04345	(-2)9.45166	(-1)1.66405
4	(-3)1.77807	(-3)5.67040	(-2)1.28794	(-2)1.84355	(-2)2.98846	(-2)4.35412	(-2)6.44585	(-1)1.13497	(-1)1.89768
4.5	(-3)3.13959	(-3)8.83637	(-2)1.84197	(-2)2.54211	(-2)3.92830	(-2)5.52082	(-2)7.88244	(-1)1.32108	(-1)2.11898
5	(-3)4.98428	(-2)1.27012	(-2)2.47286	(-2)3.31492	(-2)4.93019	(-2)6.73116	(-2)9.33355	(-1)1.50258	(-1)2.32879
6	(-2)1.01349	(-2)2.22733	(-2)3.91620	(-2)5.02576	(-2)7.05633	(-2)9.22072	(-1)1.22278	(-1)1.85002	(-1)2.71704
7	(-2)1.71029	(-2)3.38401	(-2)5.53287	(-2)6.88198	(-2)9.26946	(-1)1.17329	(-1)1.50591	(-1)2.17579	(-1)3.06824
8	(-2)2.56325	(-2)4.68880	(-2)7.25860	(-2)8.81767	(-1)1.15078	(-1)1.42156	(-1)1.77923	(-1)2.48022	(-1)3.38731
9	(-2)3.54388	(-2)6.09876	(-2)9.04642	(-1)1.07873	(-1)1.37320	(-1)1.66385	(-1)2.04108	(-1)2.76440	(-1)3.67843
10	(-2)4.62528	(-2)7.57966	(-1)1.08625	(-1)1.27596	(-1)1.59172	(-1)1.89842	(-1)2.29081	(-1)3.02969	(-1)3.94506
12	(-2)6.99926	(-1)1.06536	(-1)1.44892	(-1)1.66333	(-1)2.01146	(-2)2.34134	(-1)2.75401	(-1)3.50939	(-1)4.41622
15	(-1)1.08354	(-1)1.53020	(-1)1.97247	(-1)2.21132	(-1)2.58927	(-1)2.93820	(-1)3.36449	(-1)4.12155	(-1)5.00000
20	(-1)1.72976	(-1)2.26177	(-1)2.75750	(-1)3.01565	(-1)3.41318	(-1)3.77009	(-1)4.19516	(-1)4.92564	(-1)5.74210
24	(-1)2.21877	(-1)2.78808	(-1)3.30197	(-1)3.56448	(-1)3.96292	(-1)4.31537	(-1)4.72942	(-1)5.42848	(-1)6.19406
30	(-1)2.88245	(-1)3.47660	(-1)3.99542	(-1)4.25516	(-1)4.64344	(-1)4.98156	(-1)5.37306	(-1)6.02174	(-1)6.71684
40	(-1)3.80293	(-1)4.39540	(-1)4.89499	(-1)5.13979	(-1)5.49990	(-1)5.80830	(-1)6.15990	(-1)6.73084	(-1)7.32847
60	(-1)5.11372	(-1)5.65123	(-1)6.08785	(-1)6.29693	(-1)6.59924	(-1)6.85350	(-1)7.13856	(-1)7.59150	(-1)8.05369
120	(-1)7.04241	(-1)7.41889	(-1)7.71254	(-1)7.84968	(-1)8.04425	(-1)8.20471	(-1)8.38135	(-1)8.65539	(-1)8.92730
∞	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000

The numbers in parentheses indicate the power of ten by which the number following is to be multiplied, e.g., (-1)1.23456 = 0.123456.

PERCENTAGE POINTS OF THE BETA DISTRIBUTION

$V_1 = 20$

$1/2$	$p=0.0001$	$p=0.001$	$p=0.005$	$p=0.01$	$p=0.025$	$p=0.05$	$p=0.1$	$p=0.25$	$p=0.5$
1	(-10)8.05272	(-8)8.05272	(-6)2.01320	(-6)8.05311	(-5)5.03447	(-4)2.01562	(-4)8.09189	(-3)5.19143	(-2)2.30514
1.1	(-9)4.40556	(-7)2.89857	(-6)5.40818	(-5)1.90727	(-4)1.00959	(-4)3.56548	(-3)1.26395	(-3)6.90868	(-2)2.73370
1.2	(-8)1.82176	(-7)8.45588	(-5)1.23634	(-5)3.92572	(-4)1.80925	(-4)5.75678	(-3)1.84069	(-3)8.81261	(-2)3.16908
1.3	(-8)6.07301	(-6)2.09831	(-5)2.49611	(-5)7.25268	(-4)2.97335	(-4)8.66396	(-3)2.53977	(-2)1.08786	(-2)3.60874
1.4	(-7)1.70900	(-6)4.58484	(-5)4.57033	(-4)1.23074	(-4)4.56478	(-3)1.23381	(-3)3.35862	(-2)1.30846	(-2)4.05083
1.5	(-7)4.19929	(-6)9.04750	(-5)7.73823	(-4)1.95109	(-4)6.63606	(-3)1.68094	(-3)4.29277	(-2)1.54118	(-2)4.49397
1.6	(-7)9.24084	(-5)1.64341	(-4)1.22939	(-4)2.92647	(-4)9.22863	(-3)2.20909	(-3)5.33657	(-2)1.78435	(-2)4.93712
1.7	(-6)1.85681	(-5)2.78800	(-4)1.85329	(-4)4.19363	(-3)1.23732	(-3)2.81817	(-3)6.48375	(-2)2.03654	(-2)5.37951
1.8	(-6)3.45854	(-5)4.46775	(-4)2.67412	(-4)5.78493	(-3)1.60906	(-3)3.50706	(-3)7.72781	(-2)2.29654	(-2)5.82052
1.9	(-6)6.04316	(-5)6.82370	(-4)3.71866	(-4)7.72793	(-3)2.03931	(-3)4.27388	(-3)9.06225	(-2)2.56328	(-2)6.25971
2	(-5)1.00005	(-4)1.00045	(-4)5.01129	(-3)1.00453	(-3)2.52858	(-3)5.11620	(-2)1.04807	(-2)2.83583	(-2)6.69670
2.2	(-5)2.39603	(-4)1.94491	(-4)8.42428	(-3)1.58702	(-3)3.68332	(-3)7.01588	(-2)1.35460	(-2)3.39532	(-2)7.56308
2.5	(-5)6.88983	(-4)4.35357	(-3)1.58496	(-3)2.77270	(-3)5.84216	(-2)1.03563	(-2)1.86333	(-2)4.26129	(-2)8.84106
3	(-4)2.54476	(-3)1.18514	(-3)3.49426	(-3)5.58872	(-2)1.04768	(-2)1.70257	(-2)2.81189	(-2)5.74670	(-1)1.09077
3.5	(-4)6.56918	(-3)2.46324	(-3)6.25613	(-3)9.39237	(-2)1.62122	(-2)2.47734	(-2)3.84938	(-2)7.25395	(-1)1.28925
4	(-3)1.35389	(-3)4.31963	(-3)9.81967	(-2)1.40651	(-2)2.28312	(-2)3.33192	(-2)4.94518	(-2)8.76100	(-1)1.47963
4.5	(-3)2.39916	(-3)6.75690	(-2)1.41008	(-2)1.94764	(-2)3.01461	(-2)4.24479	(-2)6.07795	(-1)1.02545	(-1)1.66222
5	(-3)3.82223	(-3)9.74863	(-2)1.90064	(-2)2.55033	(-2)3.80023	(-2)5.19953	(-2)7.23244	(-1)1.17262	(-1)1.83736
6	(-3)7.82558	(-2)1.72215	(-2)3.03374	(-2)3.89821	(-2)5.48606	(-2)7.18703	(-2)9.56529	(-1)1.45852	(-1)2.16686
7	(-2)1.32941	(-2)2.63522	(-2)4.31888	(-2)5.38011	(-2)7.26633	(-2)9.22382	(-1)1.18856	(-1)1.73162	(-1)2.47110
8	(-2)2.00532	(-2)3.67658	(-2)5.70760	(-2)6.94554	(-2)9.09204	(-1)1.12666	(-1)1.41611	(-1)1.99127	(-1)2.75276
9	(-2)2.78984	(-2)4.81406	(-2)7.16351	(-2)8.55840	(-1)1.09305	(-1)1.32882	(-1)1.63736	(-1)2.23758	(-1)3.01421
10	(-2)3.66313	(-2)6.02138	(-2)8.65948	(-1)1.01929	(-1)1.27598	(-1)1.52718	(-1)1.85134	(-1)2.47100	(-1)3.25751
12	(-2)5.60672	(-2)8.56555	(-1)1.16961	(-1)1.34576	(-1)1.63364	(-1)1.90865	(-1)2.25591	(-1)2.90170	(-1)3.69670
15	(-2)8.81504	(-1)1.25033	(-1)1.61897	(-1)1.81955	(-1)2.13925	(-1)2.43702	(-1)2.80446	(-1)3.46790	(-1)4.25790
20	(-1)1.43852	(-1)1.89037	(-1)2.31600	(-1)2.53953	(-1)2.88643	(-1)3.20087	(-1)3.57930	(-1)4.24087	(-1)5.00000
24	(-1)1.87255	(-1)2.36535	(-1)2.81533	(-1)3.04723	(-1)3.40206	(-1)3.71901	(-1)4.09535	(-1)4.74178	(-1)5.46857
30	(-1)2.47770	(-1)3.00434	(-1)3.46978	(-1)3.70493	(-1)4.05936	(-1)4.37107	(-1)4.73588	(-1)5.35080	(-1)6.02708
40	(-1)3.34605	(-1)3.88728	(-1)4.34932	(-1)4.57784	(-1)4.91677	(-1)5.20988	(-1)5.54762	(-1)6.10536	(-1)6.70415
60	(-1)4.63816	(-1)5.14884	(-1)5.56875	(-1)5.77167	(-1)6.06738	(-1)6.31847	(-1)6.60286	(-1)7.06202	(-1)7.54199
120	(-1)6.65337	(-1)7.03036	(-1)7.32770	(-1)7.46771	(-1)7.66781	(-1)7.83425	(-1)8.01917	(-1)8.31026	(-1)8.60551
∞	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000

The numbers in parentheses indicate the power of ten by which the number following is to be multiplied, e.g., (-1)1.23456 = 0.123456.

PERCENTAGE POINTS OF THE BETA DISTRIBUTION

$\nu_1 = 24$

ν_2	$p = 0.0001$	$p = 0.001$	$p = 0.005$	$p = 0.01$	$p = 0.025$	$p = 0.05$	$p = 0.1$	$p = 0.25$	$p = 0.5$
1	(-10)6.68273	(-8)6.68273	(-6)1.67070	(-6)6.68306	(-5)4.17799	(-4)1.67273	(-4)6.71570	(-3)4.31014	(-2)1.91679
1.1	(-9)3.65762	(-7)2.40647	(-6)4.49002	(-5)1.58347	(-5)8.38199	(-4)2.96025	(-3)1.04948	(-3)5.73917	(-2)2.27495
1.2	(-8)1.51311	(-7)7.02329	(-5)1.02688	(-5)3.26064	(-4)1.50275	(-4)4.78170	(-3)1.52908	(-3)7.32509	(-2)2.63937
1.3	(-8)5.04625	(-6)1.74355	(-5)2.07410	(-5)6.02651	(-4)2.47071	(-4)7.19968	(-3)2.11083	(-3)9.04772	(-2)3.00794
1.4	(-7)1.42066	(-6)3.81128	(-5)3.79923	(-4)1.02310	(-4)3.79476	(-3)1.02575	(-3)2.79275	(-2)1.08891	(-2)3.37912
1.5	(-7)3.49224	(-6)7.52415	(-5)6.43536	(-4)1.62261	(-4)5.51903	(-3)1.39811	(-3)3.57128	(-2)1.28337	(-2)3.75175
1.6	(-7)7.68812	(-5)1.36727	(-4)1.02283	(-4)2.43480	(-4)7.67856	(-3)1.83824	(-3)4.44187	(-2)1.48677	(-2)4.12497
1.7	(-6)1.54545	(-5)2.32050	(-4)1.54254	(-4)3.49054	(-3)1.02995	(-3)2.34616	(-3)5.39947	(-2)1.69797	(-2)4.49812
1.8	(-6)2.87978	(-5)3.72012	(-4)2.22667	(-4)4.81709	(-3)1.33997	(-3)2.92104	(-3)6.43879	(-2)1.91594	(-2)4.87069
1.9	(-6)5.03393	(-5)5.68415	(-4)3.09772	(-4)6.43775	(-3)1.69903	(-3)3.56140	(-3)7.55455	(-2)2.13982	(-2)5.24227
2	(-6)8.33372	(-5)8.33716	(-4)4.17625	(-4)8.37177	(-3)2.10759	(-3)4.26532	(-3)8.74161	(-2)2.36884	(-2)5.61257
2.2	(-5)1.99830	(-4)1.62209	(-4)7.02637	(-3)1.32375	(-3)3.07284	(-3)5.85468	(-2)1.13101	(-2)2.83978	(-2)6.34838
2.5	(-5)5.75300	(-4)3.63533	(-3)1.32360	(-3)2.31571	(-3)4.88052	(-3)8.65484	(-2)1.55827	(-2)3.57082	(-2)7.43782
3	(-4)2.12902	(-4)9.91592	(-3)2.92417	(-3)4.67770	(-3)8.77246	(-2)1.42637	(-2)2.35788	(-2)4.83067	(-2)9.20988
3.5	(-4)5.50648	(-3)2.06506	(-3)5.24642	(-3)7.87848	(-2)1.36066	(-2)2.08063	(-2)3.23658	(-2)6.11648	(-1)1.09238
4	(-3)1.13701	(-3)3.62852	(-3)8.25219	(-2)1.18239	(-2)1.92067	(-2)2.80534	(-2)4.16910	(-2)7.40950	(-1)1.25791
4.5	(-3)2.01859	(-3)5.68701	(-2)1.18749	(-2)1.64089	(-2)2.54196	(-2)3.58280	(-2)5.13768	(-2)8.69814	(-1)1.41770
5	(-3)3.22184	(-3)8.22111	(-2)1.60398	(-2)2.15336	(-2)3.21186	(-2)4.39941	(-2)6.12951	(-2)9.97493	(-1)1.57195
6	(-3)6.62033	(-2)1.45795	(-2)2.57091	(-2)3.30569	(-2)4.65793	(-2)6.11029	(-2)8.14772	(-1)1.24750	(-1)1.86474
7	(-2)1.12867	(-2)2.23948	(-2)3.67494	(-2)4.58164	(-2)6.19689	(-2)7.87828	(-1)1.01733	(-1)1.48875	(-1)2.13815
8	(-2)1.70846	(-2)3.13614	(-2)4.87595	(-2)5.93902	(-2)7.78715	(-2)9.66583	(-1)1.21769	(-1)1.72032	(-1)2.39393
9	(-2)2.38495	(-2)4.12139	(-2)6.14334	(-2)7.34718	(-2)9.40039	(-1)1.14487	(-1)1.41412	(-1)1.94198	(-1)2.63369
10	(-2)3.14190	(-2)5.17324	(-2)7.45397	(-2)8.78377	(-1)1.10170	(-1)1.32111	(-1)1.60559	(-1)2.15383	(-1)2.85886
12	(-2)4.83961	(-2)7.40878	(-1)1.01390	(-1)1.16809	(-1)1.42097	(-1)1.66363	(-1)1.97161	(-1)2.54934	(-1)3.27038
15	(-2)7.67648	(-1)1.09153	(-1)1.41696	(-1)1.59478	(-1)1.87934	(-1)2.14568	(-1)2.47618	(-1)3.07845	(-1)3.80594
20	(-1)1.26899	(-1)1.67247	(-1)2.05489	(-1)2.25671	(-1)2.57131	(-1)2.85800	(-1)3.20513	(-1)3.81786	(-1)4.53143
24	(-1)1.66661	(-1)2.11176	(-1)2.52096	(-1)2.73293	(-1)3.05878	(-1)3.35148	(-1)3.70116	(-1)4.30776	(-1)5.00000
30	(-1)2.23034	(-1)2.71314	(-1)3.14290	(-1)3.36119	(-1)3.69180	(-1)3.98424	(-1)4.32865	(-1)4.91497	(-1)5.56947
40	(-1)3.05703	(-1)3.56293	(-1)3.99804	(-1)4.21443	(-1)4.53696	(-1)4.81751	(-1)5.14280	(-1)5.68530	(-1)6.27635
60	(-1)4.32344	(-1)4.81347	(-1)5.21943	(-1)5.41669	(-1)5.70555	(-1)5.95222	(-1)6.23330	(-1)6.69145	(-1)7.17715
120	(-1)6.37971	(-1)6.75503	(-1)7.05314	(-1)7.19423	(-1)7.39675	(-1)7.56609	(-1)7.75527	(-1)8.05567	(-1)8.36428
∞	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000

The numbers in parentheses indicate the power of ten by which the number following is to be multiplied, e.g., (-1)1.23456 = 0.123456.

PERCENTAGE POINTS OF THE BETA DISTRIBUTION

$\nu_1 = 30$

ν_2	p=0.0001	p=0.001	p=0.005	p=0.01	p=0.025	p=0.05	p=0.1	p=0.25	p=0.5
1	(-10)5.32397	(-8)5.32397	(-6)1.33101	(-6)5.32423	(-5)3.32851	(-4)1.33265	(-4)5.35060	(-3)3.43531	(-2)1.53008
1.1	(-9)2.91517	(-7)1.91799	(-6)3.57862	(-5)1.26205	(-5)6.68063	(-4)2.35943	(-4)8.36542	(-3)4.57689	(-2)1.81742
1.2	(-8)1.20649	(-7)5.60004	(-6)8.18785	(-5)2.59989	(-4)1.19824	(-4)3.81288	(-3)1.21941	(-3)5.84505	(-2)2.11023
1.3	(-8)4.02534	(-6)1.39081	(-5)1.65449	(-5)4.80731	(-4)1.97091	(-4)5.74353	(-3)1.68414	(-3)7.22393	(-2)2.40682
1.4	(-7)1.13372	(-6)3.04150	(-5)3.03189	(-5)8.16469	(-4)3.02842	(-4)8.18656	(-3)2.22931	(-3)8.69941	(-2)2.70598
1.5	(-7)2.78806	(-6)6.00696	(-5)5.13774	(-4)1.29544	(-4)4.40640	(-3)1.11635	(-3)2.85219	(-2)1.02592	(-2)3.00678
1.6	(-7)6.14041	(-5)1.09202	(-5)8.16928	(-4)1.94470	(-4)6.13325	(-3)1.46845	(-3)3.54927	(-2)1.18926	(-2)3.30851
1.7	(-6)1.23484	(-5)1.85412	(-4)1.23254	(-4)2.78911	(-4)8.23031	(-3)1.87507	(-3)4.31662	(-2)1.35905	(-2)3.61066
1.8	(-6)2.30194	(-5)2.97367	(-4)1.77992	(-4)3.85071	(-3)1.07125	(-3)2.33561	(-3)5.15016	(-2)1.53447	(-2)3.91280
1.9	(-6)4.02550	(-5)4.54549	(-4)2.47725	(-4)5.14844	(-3)1.35890	(-3)2.84898	(-3)6.04577	(-2)1.71486	(-2)4.21461
2	(-6)6.66698	(-5)6.66978	(-4)3.34114	(-4)6.69798	(-3)1.68643	(-3)3.41371	(-3)6.99942	(-2)1.89961	(-2)4.51584
2.2	(-5)1.59994	(-4)1.29874	(-4)5.62604	(-3)1.06000	(-3)2.46101	(-3)4.69027	(-3)9.06565	(-2)2.28016	(-2)5.11578
2.5	(-5)4.61167	(-4)2.91421	(-3)1.06115	(-3)1.85672	(-3)3.91415	(-3)6.94374	(-2)1.25106	(-2)2.87265	(-2)6.00742
3	(-4)1.71002	(-4)7.96504	(-3)2.34930	(-3)3.75876	(-3)7.05193	(-2)1.14724	(-2)1.89821	(-2)3.89859	(-2)7.46641
3.5	(-4)4.43140	(-3)1.66212	(-3)4.22404	(-3)6.34481	(-2)1.09640	(-2)1.67772	(-2)2.61280	(-2)4.95191	(-2)8.88782
4	(-4)9.16784	(-3)2.92642	(-3)6.65840	(-3)9.54358	(-2)1.55136	(-2)2.26788	(-2)3.37488	(-2)6.01741	(-1)1.02703
4.5	(-3)1.63073	(-3)4.59589	(-3)9.60220	(-2)1.32742	(-2)2.05814	(-2)2.90380	(-2)4.17033	(-2)7.08550	(-1)1.16140
5	(-3)2.60773	(-3)6.65723	(-2)1.29982	(-2)1.74593	(-2)2.60680	(-2)3.57471	(-2)4.98890	(-2)8.14985	(-1)1.29197
6	(-3)5.37867	(-2)1.18538	(-2)2.09243	(-2)2.69232	(-2)3.79851	(-2)4.98982	(-2)6.66676	(-1)1.02514	(-1)1.54218
7	(-3)9.20412	(-2)1.82810	(-2)3.00384	(-2)3.74812	(-2)5.07718	(-2)6.46507	(-2)8.36683	(-1)1.23012	(-1)1.77864
8	(-2)1.39835	(-2)2.57019	(-2)4.00235	(-2)4.87972	(-2)6.40920	(-2)7.96954	(-1)1.00641	(-1)1.42891	(-1)2.00238
9	(-2)1.95914	(-2)3.39077	(-2)5.06347	(-2)6.06234	(-2)7.77119	(-2)9.48271	(-1)1.17430	(-1)1.62106	(-1)2.21435
10	(-2)2.59013	(-2)4.27234	(-2)6.16840	(-2)7.27760	(-2)9.14658	(-1)1.09906	(-1)1.33936	(-1)1.80642	(-1)2.41543
12	(-2)4.01728	(-2)6.16348	(-2)8.45501	(-2)9.75422	(-1)1.18932	(-1)1.39554	(-1)1.65872	(-1)2.15700	(-1)2.78805
15	(-2)6.43439	(-2)9.17400	(-1)1.19424	(-1)1.34622	(-1)1.59046	(-1)1.82031	(-1)2.10724	(-1)2.63534	(-1)3.28316
20	(-1)1.07924	(-1)1.42704	(-1)1.75898	(-1)1.93509	(-1)2.21097	(-1)2.46389	(-1)2.77213	(-1)3.32206	(-1)3.97292
24	(-1)1.43198	(-1)1.82089	(-1)2.18108	(-1)2.36874	(-1)2.65871	(-1)2.92082	(-1)3.23611	(-1)3.78905	(-1)4.43053
30	(-1)1.94205	(-1)2.37130	(-1)2.75651	(-1)2.95337	(-1)3.25315	(-1)3.52005	(-1)3.83659	(-1)4.38152	(-1)5.00000
40	(-1)2.70996	(-1)3.17050	(-1)3.57001	(-1)3.76998	(-1)4.06969	(-1)4.33215	(-1)4.63863	(-1)5.15552	(-1)5.72804
60	(-1)3.92975	(-1)4.39083	(-1)4.77619	(-1)4.96465	(-1)5.24219	(-1)5.48074	(-1)5.75450	(-1)6.20561	(-1)6.69156
120	(-1)6.01685	(-1)6.38761	(-1)6.68455	(-1)6.82593	(-1)7.02995	(-1)7.20157	(-1)7.39456	(-1)7.70408	(-1)8.02676
∞	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000

The numbers in parentheses indicate the power of ten by which the number following is to be multiplied, e.g., (-1)1.23456 = 0.123456.

PERCENTAGE POINTS OF THE BETA DISTRIBUTION

$\nu_1 = 40$

ν_2	p=0.0001	p=0.001	p=0.005	p=0.01	p=0.025	p=0.05	p=0.1	p=0.25	p=0.5
1	(-10)3.97638	(-8)3.97638	(-7)9.94108	(-6)3.97658	(-5)2.48602	(-5)9.95349	(-4)3.99654	(-3)2.56689	(-2)1.14503
1.1	(-9)2.17822	(-7)1.43312	(-6)2.67394	(-6)9.43007	(-5)4.99181	(-4)1.76302	(-4)6.25130	(-3)3.42184	(-2)1.36113
1.2	(-9)9.01866	(-7)4.18611	(-6)6.12055	(-5)1.94346	(-5)8.95716	(-4)2.85033	(-4)9.11665	(-3)4.37251	(-2)1.58168
1.3	(-8)3.01027	(-6)1.04009	(-5)1.23728	(-5)3.59507	(-4)1.47394	(-4)4.29549	(-3)1.25972	(-3)5.40722	(-2)1.80543
1.4	(-8)8.48183	(-6)2.27547	(-5)2.26829	(-5)6.10842	(-4)2.26578	(-4)6.12535	(-3)1.66831	(-3)6.51558	(-2)2.03146
1.5	(-7)2.08673	(-6)4.49594	(-5)3.84539	(-5)9.69594	(-4)3.29818	(-4)8.35656	(-3)2.13550	(-3)7.68852	(-2)2.25908
1.6	(-7)4.59773	(-6)8.17671	(-5)6.11694	(-4)1.45616	(-4)4.59272	(-3)1.09973	(-3)2.65876	(-3)8.91818	(-2)2.48776
1.7	(-7)9.24991	(-5)1.38888	(-5)9.23280	(-4)2.08933	(-4)6.16576	(-3)1.40490	(-3)3.23524	(-2)1.01978	(-2)2.71712
1.8	(-6)1.72504	(-5)2.22844	(-4)1.33388	(-4)2.88581	(-4)8.02884	(-3)1.75078	(-3)3.86195	(-2)1.15214	(-2)2.94682
1.9	(-6)3.01789	(-5)3.40774	(-4)1.85723	(-4)3.86000	(-3)1.01893	(-3)2.13662	(-3)4.53591	(-2)1.28840	(-2)3.17664
2	(-6)5.00024	(-5)5.00238	(-4)2.50596	(-4)5.02391	(-3)1.26509	(-3)2.56138	(-3)5.25417	(-2)1.42811	(-2)3.40637
2.2	(-5)1.20093	(-5)9.74866	(-4)4.22326	(-4)7.95750	(-3)1.84783	(-3)3.52263	(-3)6.81249	(-2)1.71642	(-2)3.86497
2.5	(-5)3.46578	(-4)2.19017	(-4)7.97578	(-3)1.39568	(-3)2.94299	(-3)5.22286	(-3)9.41659	(-2)2.16663	(-2)4.54918
3	(-4)1.28769	(-4)5.99837	(-3)1.76957	(-3)2.83170	(-3)5.31481	(-3)8.65111	(-2)1.43274	(-2)2.94999	(-2)5.67558
3.5	(-4)3.34360	(-3)1.25430	(-3)3.18861	(-3)4.79076	(-3)8.28324	(-2)1.26842	(-2)1.97766	(-2)3.75916	(-2)6.78119
4	(-4)6.93100	(-3)2.21295	(-3)5.03734	(-3)7.22263	(-2)1.17493	(-2)1.71910	(-2)2.56173	(-2)4.58268	(-2)7.86438
4.5	(-3)1.23528	(-3)3.48262	(-3)7.28065	(-2)1.00694	(-2)1.56262	(-2)2.20695	(-2)3.17448	(-2)5.41321	(-2)8.92470
5	(-3)1.97924	(-3)5.05520	(-3)9.87773	(-2)1.32750	(-2)1.98411	(-2)2.72403	(-2)3.80828	(-2)6.24579	(-2)9.96223
6	(-3)4.09837	(-3)9.03911	(-2)1.59730	(-2)2.05670	(-2)2.90559	(-2)3.82235	(-2)5.11741	(-2)7.90426	(-1)1.19704
7	(-3)7.04073	(-2)1.39989	(-2)2.30341	(-2)2.87666	(-2)3.90287	(-2)4.97805	(-2)6.45734	(-2)9.54047	(-1)1.38929
8	(-2)1.07385	(-2)1.97641	(-2)3.08283	(-2)3.76250	(-2)4.95076	(-2)6.16755	(-2)7.80835	(-1)1.11449	(-1)1.57343
9	(-2)1.51032	(-2)2.61825	(-2)3.91742	(-2)4.69567	(-2)6.03141	(-2)7.37479	(-2)9.15767	(-1)1.27123	(-1)1.74994
10	(-2)2.00442	(-2)3.31251	(-2)4.79300	(-2)5.66215	(-2)7.13186	(-2)8.58854	(-1)1.04967	(-1)1.42398	(-1)1.91924
12	(-2)3.13225	(-2)4.81711	(-2)6.62522	(-2)7.65466	(-2)9.35644	(-1)1.10056	(-1)1.31228	(-1)1.71711	(-1)2.23791
15	(-2)5.07123	(-2)7.25208	(-2)9.46972	(-1)1.06932	(-1)1.26689	(-1)1.45390	(-1)1.68889	(-1)2.12612	(-1)2.67153
20	(-2)8.64797	(-1)1.14772	(-1)1.41984	(-1)1.56507	(-1)1.79384	(-1)2.00496	(-1)2.26415	(-1)2.73207	(-1)3.29585
24	(-1)1.16124	(-1)1.48264	(-1)1.78286	(-1)1.94029	(-1)2.18500	(-1)2.40775	(-1)2.67777	(-1)3.15717	(-1)3.72365
30	(-1)1.60019	(-1)1.96252	(-1)2.29074	(-1)2.45965	(-1)2.71850	(-1)2.95068	(-1)3.22827	(-1)3.71223	(-1)4.27196
40	(-1)2.28288	(-1)2.68326	(-1)3.03413	(-1)3.21106	(-1)3.47802	(-1)3.71361	(-1)3.99102	(-1)4.46497	(-1)5.00000
60	(-1)3.41920	(-1)3.83772	(-1)4.19127	(-1)4.36552	(-1)4.62385	(-1)4.84767	(-1)5.10666	(-1)5.53895	(-1)6.01344
120	(-1)5.50749	(-1)5.86758	(-1)6.15897	(-1)6.29875	(-1)6.50174	(-1)6.67378	(-1)6.86876	(-1)7.18522	(-1)7.52092
∞	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000

The numbers in parentheses indicate the power of ten by which the number following is to be multiplied, e.g., (-1)1.23456 = 0.123456.

PERCENTAGE POINTS OF THE BETA DISTRIBUTION

$\nu_1 = 60$

ν_2	$p = 0.0001$	$p = 0.001$	$p = 0.005$	$p = 0.01$	$p = 0.025$	$p = 0.05$	$p = 0.1$	$p = 0.25$	$p = 0.5$
1	(-10)2.63990	(-8)2.63990	(-7)6.59984	(-6)2.64004	(-5)1.65046	(-5)6.60819	(-4)2.65347	(-3)1.70489	(-3)7.61653
1.1	(-9)1.44672	(-8)9.51846	(-6)1.77597	(-6)6.26323	(-5)3.31546	(-4)1.17099	(-4)4.15240	(-3)2.27401	(-3)9.06116
1.2	(-9)5.99249	(-7)2.78148	(-6)4.06683	(-5)1.29135	(-5)5.95172	(-4)1.89400	(-4)6.05853	(-3)2.90748	(-2)1.05377
1.3	(-8)2.00102	(-7)6.91384	(-6)8.22460	(-5)2.38978	(-5)9.79802	(-4)2.85556	(-4)8.37556	(-3)3.59763	(-2)1.20380
1.4	(-8)5.64052	(-6)1.51322	(-5)1.50845	(-5)4.06221	(-4)1.50683	(-4)4.07385	(-3)1.10976	(-3)4.33769	(-2)1.35559
1.5	(-7)1.38828	(-6)2.99110	(-5)2.55832	(-5)6.45071	(-4)2.19436	(-4)5.56031	(-3)1.42124	(-3)5.12171	(-2)1.50869
1.6	(-7)3.06009	(-6)5.44215	(-5)4.07127	(-5)9.69193	(-4)3.05699	(-4)7.32078	(-3)1.77037	(-3)5.94454	(-2)1.66275
1.7	(-7)6.15898	(-6)9.24779	(-5)6.14768	(-4)1.39121	(-4)4.10585	(-4)9.35661	(-3)2.15532	(-3)6.80173	(-2)1.81749
1.8	(-6)1.14908	(-5)1.48441	(-5)8.88539	(-4)1.92238	(-4)5.34887	(-3)1.16657	(-3)2.57418	(-3)7.68945	(-2)1.97272
1.9	(-6)2.01110	(-5)2.27091	(-4)1.23768	(-4)2.57244	(-4)6.79123	(-3)1.42434	(-3)3.02499	(-3)8.60436	(-2)2.12827
2	(-6)3.33349	(-5)3.33495	(-4)1.67071	(-4)3.34955	(-4)8.43571	(-3)1.70832	(-3)3.50586	(-3)9.54357	(-2)2.28400
2.2	(-6)8.01279	(-5)6.50454	(-4)2.81801	(-4)5.31005	(-3)1.23328	(-3)2.35172	(-3)4.55055	(-2)1.14851	(-2)2.59562
2.5	(-5)2.31525	(-4)1.46315	(-4)5.32875	(-4)9.32569	(-3)1.96696	(-3)3.49204	(-3)6.30040	(-2)1.45262	(-2)3.06236
3	(-5)8.61968	(-4)4.01555	(-3)1.18485	(-3)1.89636	(-3)3.56072	(-3)5.79912	(-3)9.61319	(-2)1.98438	(-2)3.83554
3.5	(-4)2.24269	(-4)8.41438	(-3)2.13974	(-3)3.21572	(-3)5.56318	(-3)8.52513	(-2)1.33076	(-2)2.53708	(-2)4.60028
4	(-4)4.65831	(-3)1.48769	(-3)3.38798	(-3)4.85949	(-3)7.91098	(-2)1.15853	(-2)1.72880	(-2)3.10313	(-2)5.35521
4.5	(-4)8.31907	(-3)2.34625	(-3)4.90803	(-3)6.79104	(-2)1.05483	(-2)1.49135	(-2)2.14860	(-2)3.67758	(-2)6.09969
5	(-3)1.33564	(-3)3.41307	(-3)6.67426	(-3)8.97471	(-2)1.34282	(-2)1.84582	(-2)2.58513	(-2)4.25707	(-2)6.83350
6	(-3)2.77700	(-3)6.12961	(-2)1.08437	(-2)1.39728	(-2)1.97672	(-2)2.60430	(-2)3.49412	(-2)5.42216	(-2)8.26902
7	(-3)4.79034	(-3)9.53506	(-2)1.57118	(-2)1.96401	(-2)2.66907	(-2)3.41032	(-2)4.43450	(-2)6.58571	(-2)9.66238
8	(-3)7.33644	(-2)1.35219	(-2)2.11288	(-2)2.58150	(-2)3.40329	(-2)4.24813	(-2)5.39280	(-2)7.74031	(-1)1.10149
9	(-2)1.03612	(-2)1.79931	(-2)2.69764	(-2)3.23758	(-2)4.16747	(-2)5.10682	(-2)6.35999	(-2)8.88144	(-1)1.23280
10	(-2)1.38078	(-2)2.28653	(-2)3.31618	(-2)3.92293	(-2)4.95285	(-2)5.97855	(-2)7.32979	(-1)1.00062	(-1)1.36033
12	(-2)2.17549	(-2)3.35439	(-2)4.62651	(-2)5.35407	(-2)6.56218	(-2)7.73944	(-2)9.26041	(-1)1.22001	(-1)1.60463
15	(-2)3.56489	(-2)5.11488	(-2)6.70193	(-2)7.58234	(-2)9.01152	(-1)1.03730	(-1)1.20962	(-1)1.53408	(-1)1.94631
20	(-2)6.19623	(-2)8.25829	(-1)1.02589	(-1)1.13339	(-1)1.30377	(-1)1.46219	(-1)1.65828	(-1)2.01703	(-1)2.45801
24	(-2)8.43927	(-1)1.08265	(-1)1.30784	(-1)1.42681	(-1)1.61299	(-1)1.78383	(-1)1.99277	(-1)2.36895	(-1)2.82285
30	(-1)1.18587	(-1)1.46215	(-1)1.71518	(-1)1.84648	(-1)2.04917	(-1)2.23257	(-1)2.45390	(-1)2.84554	(-1)3.30844
40	(-1)1.74027	(-1)2.05740	(-1)2.33876	(-1)2.48193	(-1)2.69967	(-1)2.89362	(-1)3.12428	(-1)3.52450	(-1)3.98656
60	(-1)2.72306	(-1)3.07478	(-1)3.37591	(-1)3.52577	(-1)3.74983	(-1)3.94584	(-1)4.17502	(-1)4.56364	(-1)5.00000
120	(-1)4.72805	(-1)5.06303	(-1)5.33781	(-1)5.47092	(-1)5.66582	(-1)5.83258	(-1)6.02348	(-1)6.33805	(-1)6.67906
∞	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000

The numbers in parentheses indicate the power of ten by which the number following is to be multiplied, e.g., (-1)1.23456 = 0.123456.

PERCENTAGE POINTS OF THE BETA DISTRIBUTION

$\nu_1 = 120$

ν_2	p = 0.0001	p = 0.001	p = 0.005	p = 0.01	p = 0.025	p = 0.05	p = 0.1	p = 0.25	p = 0.5
1	(-10)1.31446	(-8)1.31446	(-7)3.28620	(-6)1.31453	(-6)8.21805	(-5)3.29041	(-4)1.32130	(-4)8.49264	(-3)3.79972
1.1	(-10)7.20654	(-8)4.74143	(-7)8.84663	(-6)3.11991	(-5)1.65155	(-5)5.83323	(-4)2.06865	(-3)1.13340	(-3)4.52397
1.2	(-9)2.98629	(-7)1.38612	(-6)2.02666	(-6)6.43530	(-5)2.96602	(-5)9.43901	(-4)3.01966	(-3)1.44997	(-3)5.26534
1.3	(-9)9.97606	(-7)3.44688	(-6)4.10036	(-5)1.19143	(-5)4.88490	(-4)1.42374	(-4)4.17649	(-3)1.79521	(-3)6.01977
1.4	(-8)2.81324	(-7)7.54726	(-6)7.52350	(-5)2.02607	(-5)7.51566	(-4)2.03206	(-4)5.53653	(-3)2.16581	(-3)6.78425
1.5	(-8)6.92702	(-6)1.49245	(-5)1.27651	(-5)3.21872	(-4)1.09497	(-4)2.77478	(-4)7.09398	(-3)2.55884	(-3)7.55651
1.6	(-7)1.52751	(-6)2.71657	(-5)2.03228	(-5)4.83805	(-4)1.52608	(-4)3.65500	(-4)8.84110	(-3)2.97178	(-3)8.33483
1.7	(-7)3.07567	(-6)4.61816	(-5)3.07007	(-5)6.94765	(-4)2.05058	(-4)4.67359	(-3)1.07691	(-3)3.40245	(-3)9.11788
1.8	(-7)5.74065	(-6)7.41591	(-5)4.43912	(-5)9.60440	(-4)2.67258	(-4)5.82972	(-3)1.28685	(-3)3.84897	(-3)9.90461
1.9	(-6)1.00514	(-5)1.13499	(-5)6.18605	(-4)1.28577	(-4)3.39479	(-4)7.12128	(-3)1.51301	(-3)4.30970	(-2)1.06942
2	(-6)1.66675	(-5)1.66749	(-5)8.35389	(-4)1.67492	(-4)4.21874	(-4)8.54523	(-3)1.75447	(-3)4.78322	(-2)1.14860
2.2	(-6)4.00971	(-5)3.25501	(-4)1.41027	(-4)2.65757	(-4)6.17337	(-3)1.17752	(-3)2.27975	(-3)5.76389	(-2)1.30741
2.5	(-5)1.16002	(-5)7.33107	(-4)2.67022	(-4)4.67354	(-4)9.85990	(-3)1.75114	(-3)3.16166	(-3)7.30460	(-2)1.54623
3	(-5)4.32763	(-4)2.01622	(-4)5.95033	(-4)9.52521	(-3)1.78926	(-3)2.91567	(-3)4.83792	(-2)1.00122	(-2)1.94435
3.5	(-4)1.12830	(-4)4.23391	(-3)1.07701	(-3)1.61902	(-3)2.80254	(-3)4.29784	(-3)6.71689	(-2)1.28445	(-2)2.34126
4	(-4)2.34844	(-4)7.50191	(-3)1.70925	(-3)2.45253	(-3)3.99560	(-3)5.85675	(-3)8.75210	(-2)1.57640	(-2)2.73615
4.5	(-4)4.20271	(-3)1.18575	(-3)2.48198	(-3)3.43582	(-3)5.34170	(-3)7.56048	(-2)1.09103	(-2)1.87463	(-2)3.12860
5	(-4)6.76169	(-3)1.72875	(-3)3.38330	(-3)4.55202	(-3)6.81835	(-3)9.38413	(-2)1.31671	(-2)2.17744	(-2)3.51841
6	(-3)1.41185	(-3)3.11892	(-3)5.52397	(-3)7.12350	(-2)1.00919	(-2)1.33168	(-2)1.79064	(-2)2.79228	(-2)4.28964
7	(-3)2.44603	(-3)4.87440	(-3)8.04415	(-2)1.00651	(-2)1.37022	(-2)1.75398	(-2)2.28657	(-2)3.41434	(-2)5.04941
8	(-3)3.76261	(-3)6.94535	(-2)1.08727	(-2)1.32995	(-2)1.75688	(-2)2.19762	(-2)2.79777	(-2)4.03964	(-2)5.79768
9	(-3)5.33758	(-3)9.28631	(-2)1.39532	(-2)1.67681	(-2)2.16338	(-2)2.65720	(-2)3.31966	(-2)4.66558	(-2)6.53455
10	(-3)7.14507	(-2)1.18580	(-2)1.72409	(-2)2.04258	(-2)2.58538	(-2)3.12877	(-2)3.84894	(-2)5.29036	(-2)7.26017
12	(-2)1.13596	(-2)1.75652	(-2)2.43016	(-2)2.81735	(-2)3.46337	(-2)4.09669	(-2)4.92059	(-2)6.53169	(-2)8.67850
15	(-2)1.88693	(-2)2.71742	(-2)3.57431	(-2)4.05258	(-2)4.83349	(-2)5.58271	(-2)6.53861	(-2)8.36238	(-1)1.07270
20	(-2)3.35364	(-2)4.49174	(-2)5.60701	(-2)6.21091	(-2)7.17491	(-2)8.07891	(-2)9.20850	(-1)1.13065	(-1)1.39449
24	(-2)4.64714	(-2)5.99568	(-2)7.28247	(-2)7.96827	(-2)9.04999	(-1)1.00521	(-1)1.12901	(-1)1.35560	(-1)1.63572
30	(-2)6.69313	(-2)8.30695	(-2)9.80479	(-1)1.05898	(-1)1.18124	(-1)1.29302	(-1)1.42946	(-1)1.67518	(-1)1.97324
40	(-1)1.01992	(-1)1.21495	(-1)1.39069	(-1)1.48114	(-1)1.62006	(-1)1.74525	(-1)1.89600	(-1)2.16261	(-1)2.47908
60	(-1)1.70038	(-1)1.93641	(-1)2.14214	(-1)2.24586	(-1)2.40265	(-1)2.54160	(-1)2.70626	(-1)2.99131	(-1)3.32094
120	(-1)3.34705	(-1)3.61436	(-1)3.83802	(-1)3.94790	(-1)4.11070	(-1)4.25191	(-1)4.41584	(-1)4.69179	(-1)5.00000
∞	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000

The numbers in parentheses indicate the power of ten by which the number following is to be multiplied, e.g., (-1)1.23456 = 0.123456.

TABLE III

VALUES OF THE COMPLETE BETA FUNCTION,

$$B(\nu_2/2, \nu_1/2) .$$

TABLE III. Values of the Complete Beta Function, $B(\nu_2/2, \nu_1/2)$.

$\nu_1 \backslash \nu_2$	1	2	3	4	5	6
1	3.141 5927	2.000 0000	1.570 7963	1.333 3333	1.178 0972	1.066 6667
1.1	2.942 4685	1.818 1818	1.401 1755	1.173 0205	1.025 2504	(- 1) 9.200 1610
1.2	2.774 5019	1.666 6667	1.261 1372	1.041 6667	(- 1) 9.008 1231	(- 1) 8.012 8205
1.3	2.630 6299	1.538 4615	1.143 7521	(- 1) 9.324 0093	(- 1) 7.979 6662	(- 1) 7.036 9882
1.4	2.505 7956	1.428 5714	1.044 0815	(- 1) 8.403 3613	(- 1) 7.118 7374	(- 1) 6.224 7121
1.5	2.396 2805	1.333 3333	(- 1) 9.585 1219	(- 1) 7.619 0476	(- 1) 6.390 0813	(- 1) 5.541 1255
1.6	2.299 2878	1.250 0000	(- 1) 8.843 4147	(- 1) 6.944 4444	(- 1) 5.767 4444	(- 1) 4.960 3175
1.7	2.212 6723	1.176 4706	(- 1) 8.195 0825	(- 1) 6.359 3005	(- 1) 5.230 9037	(- 1) 4.462 6670
1.8	2.134 7597	1.111 1111	(- 1) 7.624 1419	(- 1) 5.847 9532	(- 1) 4.765 0887	(- 1) 4.033 0712
1.9	2.064 2239	1.052 6316	(- 1) 7.118 0135	(- 1) 5.398 1107	(- 1) 4.357 9675	(- 1) 3.659 7360
2	2.000 0000	1.000 0000	(- 1) 6.666 6667	(- 1) 5.000 0000	(- 1) 4.000 0000	(- 1) 3.333 3333
2.2	1.887 1812	(- 1) 9.090 9091	(- 1) 5.897 4411	(- 1) 4.329 0043	(- 1) 3.402 3699	(- 1) 2.792 9060
2.5	1.748 0384	(- 1) 8.000 0000	(- 1) 4.994 3953	(- 1) 3.555 5556	(- 1) 2.724 2156	(- 1) 2.188 0342
3	1.570 7963	(- 1) 6.666 6667	(- 1) 3.926 9908	(- 1) 2.666 6667	(- 1) 1.963 4954	(- 1) 1.523 8095
3.5	1.437 7683	(- 1) 5.714 2857	(- 1) 3.195 0406	(- 1) 2.077 9221	(- 1) 1.474 6341	(- 1) 1.108 2251
4	1.333 3333	(- 1) 5.000 0000	(- 1) 2.666 6667	(- 1) 1.666 6667	(- 1) 1.142 8571	(- 2) 8.333 3333
4.5	1.248 5988	(- 1) 4.444 4444	(- 1) 2.270 1797	(- 1) 1.367 5214	(- 2) 9.080 7188	(- 2) 6.435 3947
5	1.178 0972	(- 1) 4.000 0000	(- 1) 1.963 4954	(- 1) 1.142 8571	(- 2) 7.363 1078	(- 2) 5.079 3651
6	1.066 6667	(- 1) 3.333 3333	(- 1) 1.523 8095	(- 2) 8.333 3333	(- 2) 5.079 3651	(- 2) 3.333 3333
7	(- 1) 9.817 4770	(- 1) 2.857 1429	(- 1) 1.227 1846	(- 2) 6.349 2063	(- 2) 3.681 5539	(- 2) 2.308 8023
8	(- 1) 9.142 8571	(- 1) 2.500 0000	(- 1) 1.015 8730	(- 2) 5.000 0000	(- 2) 2.770 5628	(- 2) 1.666 6667
9	(- 1) 8.590 2924	(- 1) 2.222 2222	(- 2) 8.590 2924	(- 2) 4.040 4040	(- 2) 2.147 5731	(- 2) 1.243 2012
10	(- 1) 8.126 9841	(- 1) 2.000 0000	(- 2) 7.388 1674	(- 2) 3.333 3333	(- 2) 1.704 9617	(- 3) 9.523 8095
12	(- 1) 7.388 1674	(- 1) 1.666 6667	(- 2) 5.683 2057	(- 2) 2.380 9524	(- 2) 1.136 6411	(- 3) 5.952 3810
15	(- 1) 6.580 7776	(- 1) 1.333 3333	(- 2) 4.112 9860	(- 2) 1.568 6275	(- 3) 6.854 9767	(- 3) 3.302 3736
20	(- 1) 5.675 4639	(- 1) 1.000 0000	(- 2) 2.702 6018	(- 3) 9.090 9091	(- 3) 3.525 1328	(- 3) 1.515 1515
24	(- 1) 5.170 1948	(- 2) 8.333 3333	(- 2) 2.068 0779	(- 3) 6.410 2564	(- 3) 2.297 8644	(- 4) 9.157 5092
30	(- 1) 4.614 7455	(- 2) 6.666 6667	(- 2) 1.488 6276	(- 3) 4.166 6667	(- 3) 1.353 2978	(- 4) 4.901 9608
40	(- 1) 3.988 1731	(- 2) 5.000 0000	(- 3) 9.727 2514	(- 3) 2.380 9524	(- 4) 6.786 4545	(- 4) 2.164 5022
60	(- 1) 3.249 5542	(- 2) 3.333 3333	(- 3) 5.327 1380	(- 3) 1.075 2688	(- 4) 2.536 7324	(- 5) 6.720 4301
120	(- 1) 2.293 0001	(- 2) 1.666 6667	(- 3) 1.895 0414	(- 4) 2.732 2404	(- 5) 4.622 0523	(- 6) 8.813 6788

The numbers in parentheses indicate the power of ten by which the number following is to be multiplied, e.g., $(-1)1.2345678 = 0.12345678$.

TABLE III. Values of the Complete Beta Function, $B(\nu_2/2, \nu_1/2)$.

$\nu_1 \backslash \nu_2$	7	8	9	10	12	15
1	(- 1) 9.817 4770	(- 1) 9.142 8571	(- 1) 8.590 2924	(- 1) 8.126 9841	(- 1) 7.388 1674	(- 1) 6.580 7776
1.1	(- 1) 8.403 6915	(- 1) 7.774 7839	(- 1) 7.262 4495	(- 1) 6.834 9749	(- 1) 6.157 6350	(- 1) 5.424 2015
1.2	(- 1) 7.264 6154	(- 1) 6.677 3504	(- 1) 6.201 5010	(- 1) 5.806 3917	(- 1) 5.184 2783	(- 1) 4.516 7600
1.3	(- 1) 6.333 0684	(- 1) 5.783 8259	(- 1) 5.341 1420	(- 1) 4.975 3341	(- 1) 4.402 9505	(- 1) 3.794 3230
1.4	(- 1) 5.561 5136	(- 1) 5.047 0639	(- 1) 4.634 5947	(- 1) 4.295 3735	(- 1) 3.767 8715	(- 1) 3.211 9797
1.5	(- 1) 4.915 4471	(- 1) 4.432 9004	(- 1) 4.048 0153	(- 1) 3.732 9688	(- 1) 3.246 0598	(- 1) 2.737 4953
1.6	(- 1) 4.369 2760	(- 1) 3.916 0401	(- 1) 3.556 3875	(- 1) 3.263 3668	(- 1) 2.813 2472	(- 1) 2.347 2446
1.7	(- 1) 3.903 6595	(- 1) 3.477 4029	(- 1) 3.140 8754	(- 1) 2.867 9611	(- 1) 2.451 2488	(- 1) 2.023 5989
1.8	(- 1) 3.503 7417	(- 1) 3.102 3624	(- 1) 2.787 0672	(- 1) 2.532 5408	(- 1) 2.146 2210	(- 1) 1.753 1963
1.9	(- 1) 3.157 9474	(- 1) 2.779 5464	(- 1) 2.483 7789	(- 1) 2.246 0981	(- 1) 1.887 4774	(- 1) 1.525 7697
2	(- 1) 2.857 1429	(- 1) 2.500 0000	(- 1) 2.222 2222	(- 1) 2.000 0000	(- 1) 1.666 6667	(- 1) 1.333 3333
2.2	(- 1) 2.362 7569	(- 1) 2.043 5898	(- 1) 1.797 7498	(- 1) 1.602 8155	(- 1) 1.313 7832	(- 1) 1.029 6088
2.5	(- 1) 1.816 1438	(- 1) 1.544 4947	(- 1) 1.338 2112	(- 1) 1.176 7579	(- 2) 9.414 0631	(- 2) 7.157 1463
3	(- 1) 1.227 1846	(- 1) 1.015 8730	(- 2) 8.590 2924	(- 2) 7.388 1674	(- 2) 5.683 2057	(- 2) 4.112 9860
3.5	(- 2) 8.674 3184	(- 2) 6.999 3165	(- 2) 5.782 8790	(- 2) 4.869 0897	(- 2) 3.606 7331	(- 2) 2.488 6320
4	(- 2) 6.349 2063	(- 2) 5.000 0000	(- 2) 4.040 4040	(- 2) 3.333 3333	(- 2) 2.380 9524	(- 2) 1.568 6275
4.5	(- 2) 4.779 3257	(- 2) 3.677 3684	(- 2) 2.909 1548	(- 2) 2.353 5158	(- 2) 1.623 1143	(- 2) 1.022 4495
5	(- 2) 3.681 5539	(- 2) 2.770 5628	(- 2) 2.147 5731	(- 2) 1.704 9617	(- 2) 1.136 6411	(- 3) 6.854 9767
6	(- 2) 2.308 8023	(- 2) 1.666 6667	(- 2) 1.243 2012	(- 3) 9.523 8095	(- 3) 5.952 3810	(- 3) 3.302 3736
7	(- 2) 1.533 9808	(- 2) 1.065 6011	(- 3) 7.669 9039	(- 3) 5.683 2057	(- 3) 3.343 0622	(- 3) 1.713 7442
8	(- 2) 1.065 6011	(- 3) 7.142 8571	(- 3) 4.972 8050	(- 3) 3.571 4286	(- 3) 1.984 1270	(- 4) 9.435 3531
9	(- 3) 7.669 9039	(- 3) 4.972 8050	(- 3) 3.355 5830	(- 3) 2.340 1435	(- 3) 1.231 6545	(- 4) 5.452 8223
10	(- 3) 5.683 2057	(- 3) 3.571 4286	(- 3) 2.340 1435	(- 3) 1.587 3016	(- 4) 7.936 5079	(- 4) 3.281 8619
12	(- 3) 3.343 0622	(- 3) 1.984 1270	(- 3) 1.231 6545	(- 4) 7.936 5079	(- 4) 3.607 5036	(- 4) 1.312 7448
15	(- 3) 1.713 7442	(- 4) 9.435 3531	(- 4) 5.452 8223	(- 4) 3.281 8619	(- 4) 1.312 7448	(- 5) 4.016 5879
20	(- 4) 7.050 2657	(- 4) 3.496 5035	(- 4) 1.827 8467	(- 5) 9.990 0100	(- 5) 3.330 0033	(- 6) 7.929 4794
24	(- 4) 3.961 8351	(- 4) 1.831 5018	(- 5) 8.946 0793	(- 5) 4.578 7546	(- 5) 1.346 6925	(- 6) 2.694 1860
30	(- 4) 1.933 2826	(- 5) 8.169 9346	(- 5) 3.657 5617	(- 5) 1.719 9862	(- 6) 4.299 9656	(- 7) 6.846 2583
40	(- 5) 7.540 5050	(- 5) 2.823 2637	(- 5) 1.123 0539	(- 6) 4.705 4395	(- 7) 9.410 8790	(- 7) 1.091 2821
60	(- 5) 1.951 3326	(- 6) 6.109 4819	(- 6) 2.038 7057	(- 7) 7.187 6258	(- 7) 1.026 8037	(- 9) 7.336 7342
120	(- 6) 1.848 8209	(- 7) 4.196 9899	(- 7) 1.019 0351	(- 8) 2.623 1187	(- 9) 2.017 7836	(- 11) 5.835 1908

The numbers in parentheses indicate the power of ten by which the number following is to be multiplied, e.g., $(-1)1.2345678 = 0.12345678$.

TABLE III. Values of the Complete Beta Function, $B(\nu_2/2, \nu_1/2)$.

$\nu_1 \backslash \nu_2$	20	24	30	40	60	120
1	(- 1) 5.675 4639	(- 1) 5.170 1948	(- 1) 4.614 7455	(- 1) 3.988 1731	(- 1) 3.249 5542	(- 1) 2.293 0001
1.1	(- 1) 4.611 4552	(- 1) 4.162 9025	(- 1) 3.674 5389	(- 1) 3.130 3503	(- 1) 2.499 4730	(- 1) 1.703 6761
1.2	(- 1) 3.785 6711	(- 1) 3.386 6609	(- 1) 2.956 3921	(- 1) 2.482 7554	(- 1) 1.942 7333	(- 1) 1.279 1696
1.3	(- 1) 3.135 4443	(- 1) 2.779 8172	(- 1) 2.399 9825	(- 1) 1.986 9167	(- 1) 1.523 7039	(- 2) 9.691 9209
1.4	(- 1) 2.617 1063	(- 1) 2.299 5582	(- 1) 1.963 6108	(- 1) 1.602 6713	(- 1) 1.204 5502	(- 2) 7.401 9559
1.5	(- 1) 2.199 4807	(- 1) 1.915 4310	(- 1) 1.617 7606	(- 1) 1.301 7825	(- 2) 9.589 5054	(- 2) 5.693 0893
1.6	(- 1) 1.859 8479	(- 1) 1.605 3301	(- 1) 1.341 1156	(- 1) 1.064 0035	(- 2) 7.682 3820	(- 2) 4.406 5202
1.7	(- 1) 1.581 3553	(- 1) 1.352 9260	(- 1) 1.118 0142	(- 2) 8.745 6953	(- 2) 6.189 5613	(- 2) 3.430 2490
1.8	(- 1) 1.351 3095	(- 1) 1.145 9722	(- 2) 9.367 7636	(- 2) 7.225 5424	(- 2) 5.012 6368	(- 2) 2.684 2051
1.9	(- 1) 1.160 0200	(- 2) 9.751 6061	(- 2) 7.885 7611	(- 2) 5.997 6750	(- 2) 4.078 7443	(- 2) 2.110 4612
2	(- 1) 1.000 0000	(- 2) 8.333 3333	(- 2) 6.666 6667	(- 2) 5.000 0000	(- 2) 3.333 3333	(- 2) 1.666 6667
2.2	(- 2) 7.516 2178	(- 2) 6.155 7886	(- 2) 4.820 2434	(- 2) 3.515 8089	(- 2) 2.252 7675	(- 2) 1.051 9074
2.5	(- 2) 5.019 9725	(- 2) 4.006 8715	(- 2) 3.039 1872	(- 2) 2.126 5844	(- 2) 1.284 3290	(- 3) 5.413 8441
3	(- 2) 2.702 6018	(- 2) 2.068 0779	(- 2) 1.488 6276	(- 3) 9.727 2514	(- 3) 5.327 1380	(- 3) 1.895 0414
3.5	(- 2) 1.534 5214	(- 2) 1.126 7241	(- 3) 7.703 6218	(- 3) 4.705 2778	(- 3) 2.338 9038	(- 4) 7.028 5053
4	(- 3) 9.090 9091	(- 3) 6.410 2564	(- 3) 4.166 6667	(- 3) 2.380 9524	(- 3) 1.075 2688	(- 4) 2.732 2404
4.5	(- 3) 5.577 7472	(- 3) 3.780 0674	(- 3) 2.337 8363	(- 3) 1.250 9320	(- 4) 5.137 3159	(- 4) 1.104 8661
5	(- 3) 3.525 1328	(- 3) 2.297 8644	(- 3) 1.353 2978	(- 4) 6.786 4545	(- 4) 2.536 7324	(- 5) 4.622 0523
6	(- 3) 1.515 1515	(- 4) 9.157 5092	(- 4) 4.901 9608	(- 4) 2.164 5022	(- 5) 6.720 4301	(- 6) 8.813 6788
7	(- 4) 7.050 2657	(- 4) 3.961 8351	(- 4) 1.933 2826	(- 5) 7.540 5050	(- 5) 1.951 3326	(- 6) 1.848 8209
8	(- 4) 3.496 5035	(- 4) 1.831 5018	(- 5) 8.169 9346	(- 5) 2.823 2637	(- 6) 6.109 4819	(- 7) 4.196 9899
9	(- 4) 1.827 8467	(- 5) 8.946 0793	(- 5) 3.657 5617	(- 5) 1.123 0539	(- 6) 2.038 7057	(- 7) 1.019 0351
10	(- 5) 9.990 0100	(- 5) 4.578 7546	(- 5) 1.719 9862	(- 6) 4.705 4395	(- 7) 7.187 6258	(- 8) 2.623 1187
12	(- 5) 3.330 0033	(- 5) 1.346 6925	(- 6) 4.299 9656	(- 7) 9.410 8790	(- 7) 1.026 8037	(- 9) 2.017 7836
15	(- 6) 7.929 4794	(- 6) 2.694 1860	(- 7) 6.846 2583	(- 7) 1.091 2821	(- 9) 7.336 7342	(-11) 5.835 1908
20	(- 6) 1.082 5088	(- 7) 2.835 1422	(- 8) 5.098 7734	(- 9) 4.992 5087	(-10) 1.572 9567	(-13) 2.940 8958
24	(- 7) 2.835 1422	(- 8) 6.163 3525	(- 9) 8.628 6935	(-10) 5.905 1179	(-11) 1.055 0320	(-15) 6.509 0249
30	(- 8) 5.098 7734	(- 9) 8.628 6935	(-10) 8.595 6334	(-11) 3.592 0169	(-13) 2.899 6650	(-17) 3.654 9504
40	(- 9) 4.992 5087	(-10) 5.905 1179	(-11) 3.592 0169	(-13) 7.254 4446	(-15) 1.768 1885	(-20) 1.885 7342
60	(-10) 1.572 9567	(-11) 1.055 0320	(-13) 2.899 6650	(-15) 1.768 1885	(-19) 5.637 0780	(-26) 7.427 9529
120	(-13) 2.940 8958	(-15) 6.509 0249	(-17) 3.654 9504	(-20) 1.885 7342	(-26) 7.427 9529	(-37) 3.450 1231

The numbers in parentheses indicate the power of ten by which the number following is to be multiplied, e.g., $(-1)1.2345678 = 0.12345678$.

