Figure 13.13m. 99.995*th* PERCENTILES FOR THE *F* DISTRIBUTION [F_{ν_1,ν_2}]

[Calculated with *qf* in **R** Version 3.2.2 using 17-digit arithmetic; the accuracy of all digits in the table entries has *not* been verified]

Each table entry is the value (y) of the random variable $Y \sim F_{\nu_1,\nu_2}$ such that $\Pr(Y \le y) = 0.99995$ (ν_1 is the numerator, ν_2 the denominator, degrees of freedom)

$Df \rightarrow$ / ν_2 \ ν_1	1	2	3	4	5	6	7	8	9	10	12	15	20	25	30	40	50	60	75	100	175	350	1,000	ν_2
1	162113893	200000000	216151858	225000000	230561982	234375000	237149467	239257812	240913744	242248535	244267273	246305607	248363209	249606871	250439721	251484949	252114288	252534758	252955952	253377868	253921385	254284386	254520617	1
2	19998.5	19999.0	19999.2	19999.2	19999.3	19999.3	19999.4	19999.4	19999.4	19999.4	19999.4	19999.4	19999.4	19999.5	19999.5	19999.5	19999.5	19999.5	19999.5	19999.5	19999.5	19999.5	19999.5	2
3	1245.94	1103.71	1047.34	1016.86	997.71	984.57	974.98	967.67	961.92	957.27	950.23	943.09	935.86	931.47	928.52	924.82	922.59	921.09	919.59	918.09	916.15	914.86	914.01	3
4	343.08	280.84	256.64	243.61	235.44	229.83	225.73	222.61	220.14	218.15	215.13	212.07	208.96	207.07	205.80	204.20	203.24	202.59	201.95	201.30	200.46	199.90	199.53	4
5	166.225	128.826	114.472	106.771	101.943	98.626	96.204	94.356	92.899	91.720	89.930	88.111	86.262	85.138	84.381	83.428	82.852	82.466	82.079	81.690	81.188	80.852	80.632	5
6	105.286	78.433	68.220	62.754	59.329	56.975	55.255	53.943	52.907	52.069	50.794	49.498	48.179	47.375	46.834	46.151	45.738	45.462	45.183	44.904	44.543	44.302	44.144	6
7	77.132	55.783	47.718	43.408	40.709	38.854	37.497	36.461	35.643	34.981	33.973	32.947	31.901	31.263	30.833	30.290	29.962	29.741	29.519	29.297	29.009	28.815	28.689	7
8	61.633	43.568	36.777	33.154	30.885	29.324	28.183	27.311	26.622	26.064	25.214	24.348	23.463	22.923	22.559	22.098	21.819	21.632	21.443	21.254	21.008	20.844	20.736	8
9	52.060	36.144	30.184	27.006	25.017	23.648	22.647	21.881	21.276	20.786	20.038	19.276	18.496	18.019	17.697	17.290	17.043	16.877	16.710	16.542	16.324	16.178	16.082	9
10	45.654	31.239	25.857	22.990	21.195	19.959	19.055	18.364	17.817	17.373	16.697	16.006	15.299	14.867	14.574	14.203	13.978	13.827	13.674	13.521	13.322	13.188	13.101	10
11	41.108 3	27.794 2	22.835 3	20.195 5	18.542 3	17.404 5	16.571 3	15.933 6	15.429 3	15.020 1	14.395 8	13.757 5	13.103 3	12.702 1	12.430 7	12.086 6	11.877 4	11.736 7	11.595 0	11.452 1	11.266 9	11.142 3	11.060 8	11
12	37.734 8	25.260 0	20.623 1	18.155 8	16.610 5	15.546 7	14.767 4	14.170 7	13.698 6	13.315 4	12.730 4	12.131 8	11.517 5	11.140 4	10.885 0	10.560 9	10.363 6	10.233 8	10.097 0	9.962 1	9.787 0	9.669 1	9.592 0	12
13	35.142 6	23.327 0	18.942 5	16.610 3	15.149 6	14.143 8	13.406 6	12.842 0	12.395 1	12.032 2	11.478 0	10.910 3	10.327 1	9.968 6	9.725 7	9.417 0	9.229 0	9.102 4	8.974 6	8.845 8	8.678 4	8.565 6	8.491 8	13
14	33.094 3	21.809 2	17.627 4	15.403 8	14.010 9	13.051 6	12.348 3	11.809 4	11.382 7	11.036 1	10.506 4	9.963 5	9.405 2	9.061 6	8.828 5	8.532 2	8.351 4	8.229 6	8.106 7	7.982 6	7.821 2	7.712 4	7.641 2	14
15	31.438 3	20.588 7	16.573 2	14.438 5	13.101 3	12.180 0	11.504 4	10.986 7	10.576 5	10.243 2	9.733 6	9.210 9	8.672 8	8.341 3	8.116 3	7.829 8	7.655 0	7.537 0	7.418 0	7.297 7	7.141 1	7.035 5	6.966 3	15
16	30.073 8	19.587 9	15.711 0	13.650 5	12.359 6	11.470 1	10.817 6	10.317 4	9.921 0	9.598 7	9.105 9	8.600 0	8.078 6	7.757 1	7.538 7	7.260 4	7.090 3	6.975 6	6.859 7	6.742 5	6.589 8	6.486 7	6.419 1	16
17	28.931 5	18.753 5	14.993 9	12.996 1	11.744 4	10.881 7	10.248 7	9.763 3	9.378 5	9.065 7	8.586 9	8.095 1	7.587 9	7.274 8	7.061 9	6.790 4	6.624 3	6.512 2	6.398 9	6.284 2	6.134 7	6.033 7	5.967 4	17
18	27.961 9	18.048 0	14.388 9	12.444 8	11.226 6	10.386 9	9.770 6	9.297 8	8.923 0	8.618 1	8.151 4	7.671 7	7.176 4	6.870 5	6.662 2	6.396 5	6.233 8	6.123 9	6.012 7	5.900 1	5.753 3	5.654 0	5.588 7	18
19	27.129 3	17.444 1	13.872 0	11.974 3	10.785 2	9.965 3	9.363 5	8.901 7	8.534	8.237 5	7.781 1	7.311 8	6.826 9	6.527 1	6.322 8	6.062 0	5.902 2	5.794 1	5.684 7	5.573 9	5.429 3	5.331 4	5.267 0	19
20	26.406 9	16.921 7	13.425 6	11.568 6	10.404 8	9.602 3	9.013 0	8.560 8	8.202 0	7.910 1	7.462 8	7.002 6	6.526 7	6.232 1	6.031 3	5.774 7	5.617 3	5.510 8	5.403 0	5.293 7	5.150 9	5.054 1	4.990 5	20
22	25.216 5	16.064 2	12.694 5	10.905 0	9.783 3	9.009 6	8.441 3	8.004 9	7.658 6	7.376 7	6.944 5	6.499 2	6.038 1	5.752 2	5.557 1	5.307 3	5.153 9	5.049 9	4.944 5	4.837 6	4.697 6	4.602 6	4.540 0	22
24	24.277 0	15.390 5	12.12 16	10.385 9	9.297 9	8.547 1	7.995 4	7.571 7	7.235 3	6.961 3	6.541 0	6.107 7	5.658 3	5.379 2	5.188 5	4.944 0	4.793 5	4.691 5	4.588 0	4.482 7	4.344 8	4.251 0	4.189 1	24
26	23.517 3	14.847 9	11.661 2	9.969 3	8.908 7	8.176 6	7.638 6	7.225 1	6.896 8	6.629 3	6.218 7	5.794 9	5.355 0	5.081 4	4.894 1	4.653 8	4.505 7	4.405 2	4.303 0	4.199 1	4.062 6	3.969 6	3.908 2	26
28	22.890 7	14.401 7	11.283 4	9.628 0	8.590 0	7.873 5	7.346 7	6.941 8	6.620 2	6.358 0	5.955 5	5.539 7	5.107 5	4.838 3	4.654 0	4.417 0	4.270 8	4.171 4	4.070 3	3.967 3	3.831 9	3.739 4	3.678 3	28
30	22.365 3	14.028 6	10.967 9	9.343 3	8.324 5	7.621 1	7.103 8	6.706 2	6.390 1	6.132 5	5.736 7	5.327 6	4.901 8	4.636 4	4.454 4	4.220 2	4.075 5	3.977 0	3.876 7	3.774 5	3.639 8	3.547 7	3.486 7	30
35	21.361 2	13.318 5	10.368 9	8.803 5	7.821 7	7.143 5	6.644 5	6.260 7	5.955 5	5.706 5	5.323 7	4.927 3	4.514 0	4.255 6	4.077 9	3.848 7	3.706 6	3.609 7	3.510 7	3.409 6	3.275 8	3.184 0	3.123 0	35
40	20.647 1	12.815 7	9.945 9	8.423 1	7.467 8	6.807 7	6.321 9	5.948 0	5.650 5	5.407 7	5.034 1	4.646 9	4.242 2	3.988 7	3.814 1	3.588 1	3.447 7	3.351 7	3.253 5	3.152 8	3.019 2	2.927 0	2.866 6	40
45	20.113 5	12.441 3	9.631 7	8.140 8	7.205 5	6.559 0	6.083 1	5.716 7	5.425 0	5.186 9	4.820 2	4.439 8	4.041 5	3.791 6	3.619 1	3.395 5	3.256 1	3.160 6	3.062 8	2.962 2	2.828 3	2.735 5	2.673 5	45
50	19.699 9	12.151 9	9.389 1	7.923 2	7.003 5	6.367 6	5.899 4	5.538 7	5.251 6	5.017 1	4.655 8	4.280 6	3.887 4	3.640 1	3.469 2	3.247 3	3.108 6	3.013 4	2.915 7	2.815 1	2.680 6	2.587 1	2.524 4	50
60	19.100 6	11.733 9	9.039 4	7.609 9	6.712 8	6.092 5	5.635 4	5.283 3	5.002 8	4.773 5	4.420 0	4.052 4	3.666 3	3.422 8	3.254 1	3.034 3	2.896 4	2.801 5	2.703 7	2.602 6	2.466 6	2.373 4	2.307 1	60
70	18.687 5	11.446 7	8.799 6	7.395 4	6.514 0	5.904 4	5.455 1	5.108 8	4.832 8	4.607 2	4.259 1	3.896 8	3.515 5	3.274 5	3.107 2	2.888 7	2.751 2	2.656 2	2.558 2	2.456 4	2.318 8	2.222 7	2.155 7	70
80	18.385 6	11.237 2	8.625 0	7.239 3	6.369 5	5.767 7	5.324 1	4.982 1	4.709 5	4.486 6	4.142 4	3.783 9	3.406 1	3.166 9	3.000 6	2.782 9	2.645 5	2.550 4	2.452 0	2.349 5	2.210 2	2.111 3	2.043 7	80
90	18.155 4	11.077 8	8.492 2	7.120 7	6.259 7	5.664 0	5.224 7	4.886 0	4.616 0	4.395 1	4.054 0	3.698 3	3.323 1	3.085 3	2.919 7	2.702 5	2.565 1	2.469 9	2.371 0	2.267 8	2.126 9	2.026 3	1.957 0	90
100	17.974 0	10.952 4	8.387 8	7.027 5	6.173 5	5.582 5	5.146 8	4.810 6	4.542 6	4.323 3	3.984 6	3.631 2	3.258 0	3.021 2	2.856 2	2.639 3	2.501 9	2.406 5	2.307 2	2.203 3	2.060 9	1.958 6	1.887 8	100
125	17.653 7	10.731 3	8.204 0	6.863 6	6.021 9	5.439 4	5.009 7	4.678 2	4.413 7	4.197 3	3.862 7	3.513 3	3.143 8	2.908 8	2.744 6	2.528 2	2.390 6	2.294 6	2.194 4	2.089 0	1.943 3	1.837 2	1.762 9	125
150	17.444 5	10.587 1	8.084 3	6.756 9	5.923 4	5.346 4	4.920 7	4.592 2	4.330 0	4.115 4	3.783 6	3.436 8	3.069 6	2.835 7	2.672 0	2.455 8	2.317 9	2.221 5	2.120 6	2.014 0	1.865 5	1.756 1	1.678 5	150
175	17.297 2	10.485 7	8.000 2	6.681 9	5.854 1	5.281 0	4.858 2	4.531 8	4.271 3	4.058 0	3.728 1	3.383 2	3.017 6	2.784 4	2.621 1	2.404 0	2.266 8	2.170 1	2.068 5	1.960 8	1.810 0	1.697 8	1.617 4	175
200	17.187 8	10.410 5	7.937 8	6.626 4	5.802 9	5.232 7	4.811 9	4.487 1	4.227 8	4.015 5	3.687 1	3.343 5	2.979 1	2.746 5	2.583 4	2.367 3	2.228 9	2.131 8	2.029 7	1.921 2	1.768 3	1.653 8	1.570 7	200
250	17.036 2	10.306 4	7.851 6	6.549 6	5.732 0	5.165 8	4.747 9	4.425 3	4.167 8	3.956 8	3.630 4	3.288 7	2.925 9	2.694 0	2.531 2	2.315 1	2.176 4	2.078 8	1.975 8	1.866 0	1.709 9	1.591 4	1.503 8	250
300	16.936 2	10.237 7	7.794 7	6.499 0	5.685 3	5.121 8	4.705 9	4.384 7	4.128 3	3.918 2	3.593 0	3.252 6	2.890 9	2.659 5	2.496 9	2.280 8	2.141 7	2.043 7	1.940 2	1.829 3	1.670 9	1.549 1	1.457 8	300
350	16.865 3	10.189 1	7.754 4	6.463 2	5.652 2	5.090 6	4.676 1	4.355 9	4.100 3	3.890 9	3.566 6	3.227 0	2.866 1	2.635 1	2.472 6	2.256 4	2.117 1	2.018 8	1.914 8	1.803 1	1.642 8	1.518 5	1.424 0	350
400	16.812 3	10.152 8	7.724 4	6.436 5	5.627 6	5.067 4	4.653 9	4.334 5	4.079 5	3.870 5	3.547 0	3.208 0	2.847 7	2.616 8	2.454 4	2.238 2	2.098 7	2.000 2	1.895 8	1.783 5	1.621 7	1.495 3	1.398 0	400
450	16.771 3	10.124 7	7.701 1	6.415 8	5.608 5	5.049 4	4.636 7	4.317 9	4.063 3	3.854 7	3.531 7	3.193 3	2.833 4	2.602 7	2.440 4	2.224 1	2.084 5	1.985 8	1.881 1	1.768 3	1.605 2	1.477 0	1.377 3	450
500	16.738 6	10.102 3	7.682 6	6.399 3	5.593 3	5.035 1	4.623 0	4.304 7	4.050 5	3.842 2	3.519 6	3.181 6	2.822 0	2.591 5	2.429 2	2.212 9	2.073 2	1.974 3	1.869 3	1.756 2	1.592 0	1.462 2	1.360 4	500
600	16.689 7	10.068 8	7.654 9	6.374 7	5.570 6	5.013 7	4.602 5	4.284 9	4.031 3	3.823 4	3.501 5	3.164 1	2.805 0	2.574 7	2.412 5	2.196 1	2.056 2	1.957 1	1.851 7	1.737 9	1.572 1	1.439 9	1.334 5	600
700	16.654 9	10.044 9	7.635 2	6.357 2	5.554 5	4.998 5	4.588 0	4.270 9	4.017 6	3.810 1	3.488 6	3.151 6	2.792 9	2.562 8	2.400 6	2.184 2	2.044 1	1.944 8	1.839 2	1.724 9	1.557 8	1.423 7	1.315 4	700
800	16.628 8	10.027 1	7.620 4	6.344 1	5.542 4	4.987 1	4.577 1	4.260 4	4.007 4	3.800 1	3.479 0	3.142 3	2.783 9	2.553 9	2.391 7	2.175 2	2.035 1	1.935 6	1.829 8	1.715 1	1.547 1	1.411 4	1.300 7	800
900	16.608 6	10.013 3	7.609 0	6.333 9	5.533 0	4.978 3	4.568 7	4.252 3	3.999 5	3.792 4	3.471 5	3.135 1	2.776 9	2.546 9	2.384 8	2.168 3	2.028 1	1.928 5	1.822 5	1.707 5	1.538 7	1.401 8	1.289 0	900
1,000	16.592 5	10.002 2	7.599 8	6.325 8	5.525 5	4.971 2	4.561 9	4.245 7	3.993 2	3.786 2	3.465 5	3.129 3	2.771 3	2.541 4	2.379 3	2.162 8	2.022 4	1.922 8	1.816 6	1.701 4	1.532 0	1.394 0	1.279 5	1,000
2,000	16.520 1	9.952 7	7.558 9	6.289 4	5.492 0	4.939 6	4.531 7	4.216 6	3.964 9	3.758 5	3.438 8	3.103 5	2.746 2	2.516 6	2.354 6	2.137 0	1.997 3	1.897 3	1.790 4	1.674 0	1.501 5	1.358 4	1.234 3	2,000
3,000	16.496 0	9.936 3	7.545 3	6.277 4	5.480 9	4.929 2	4.521 7	4.207 0	3.955 5	3.749 3	3.429 9	3.094 9	2.737 9	2.508 4	2.346 5	2.129 7	1.988 9	1.888 8	1.781 7	1.664 9	1.491 3	1.346 2	1.218 1	3,000
4,000	16.484 0	9.928 0	7.538 5	6.271 4	5.475 3	4.923 9	4.516 7	4.202 1	3.950 8	3.744 8	3.425 5	3.090 6	2.733 7	2.504 3	2.342 4	2.125 6	1.984 8	1.884 5	1.777 3	1.660 3	1.486 2	1.340 1	1.209 8	4,000
5,000	16.476 8	9.923 1	7.534 5	6.267 7	5.472 0	4.920 8	4.513 7	4.199 2	3.948 0	3.742 0	3.422 9	3.088 1	2.731 2	2.501 9	2.339 9	2.123 1	1.982 3	1.882 0	1.774 7	1.657 6	1.483 1	1.336 4	1.204 7	5,000
7,500	16.467 3	9.916 6	7.529 1	6.262 9	5.467 6	4.916 6	4.509 7	4.195 4	3.944 3	3.738 4	3.419 3	3.084 7	2.727 9	2.498 6	2.336 7	2.119 9	1.978 9	1.878 6	1.771 2	1.653 9	1.479 0	1.331 4	1.197 8	7,500
10,000	16.462 5	9.913 3	7.526 4	6.260 5	5.465 4	4.914 5	4.507 7	4.193 5	3.942 4	3.736 5	3.417 6	3.083 0	2.726 3	2.497 0	2.335 0	2.118 2	1.977 3	1.876 9	1.769 4	1.652 1	1.476 9	1.329 8	1.194 3	10,000
	1	2	3	4	5	6	7	8	9	10	12	15	20	25	30	40	50	60	75	100	175	350	1,000	

F_{ν_1,ν_2} .99995

F_{ν_1,ν_2} .99995

2017-02-20

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