

## Critical Values for the Tukey Q Test

d.f. =  $N - K$  (ANOVA Error or Within d.f.) for ANOVA: Single Factor

d.f. =  $N - R * C$  (ANOVA Within d.f.) for ANOVA: Two-Factor With Replication

d.f. =  $(R - 1) * (C - 1)$  (ANOVA Error d.f.) for ANOVA: Two-Factor Without Replication

Number of Groups (Treatments) =  $K$

| Error<br>df | Number of Groups (Treatments) |       |       |       |       |       |       |       |       |
|-------------|-------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|
|             | 2                             | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    |
| 1           | 17.97                         | 26.98 | 32.82 | 37.08 | 40.41 | 43.12 | 45.40 | 47.36 | 49.07 |
| 2           | 6.08                          | 8.33  | 9.80  | 10.88 | 11.74 | 12.44 | 13.03 | 13.54 | 13.99 |
| 3           | 4.50                          | 5.91  | 6.82  | 7.50  | 8.04  | 8.48  | 8.85  | 9.18  | 9.46  |
| 4           | 3.93                          | 5.04  | 5.76  | 6.29  | 6.71  | 7.05  | 7.35  | 7.60  | 7.83  |
| 5           | 3.64                          | 4.60  | 5.22  | 5.67  | 6.03  | 6.33  | 6.58  | 6.80  | 6.99  |
| 6           | 3.46                          | 4.34  | 4.90  | 5.30  | 5.63  | 5.90  | 6.12  | 6.32  | 6.49  |
| 7           | 3.34                          | 4.16  | 4.68  | 5.06  | 5.36  | 5.61  | 5.82  | 6.00  | 6.16  |
| 8           | 3.26                          | 4.04  | 4.53  | 4.89  | 5.17  | 5.40  | 5.60  | 5.77  | 5.92  |
| 9           | 3.20                          | 3.95  | 4.41  | 4.76  | 5.02  | 5.24  | 5.43  | 5.59  | 5.74  |
| 10          | 3.15                          | 3.88  | 4.33  | 4.65  | 4.91  | 5.12  | 5.30  | 5.46  | 5.60  |
| 11          | 3.11                          | 3.82  | 4.26  | 4.57  | 4.82  | 5.03  | 5.20  | 5.35  | 5.49  |
| 12          | 3.08                          | 3.77  | 4.20  | 4.51  | 4.75  | 4.95  | 5.12  | 5.27  | 5.39  |
| 13          | 3.06                          | 3.73  | 4.15  | 4.45  | 4.69  | 4.88  | 5.05  | 5.19  | 5.32  |
| 14          | 3.03                          | 3.70  | 4.11  | 4.41  | 4.64  | 4.83  | 4.99  | 5.13  | 5.25  |
| 15          | 3.01                          | 3.67  | 4.08  | 4.37  | 4.59  | 4.78  | 4.94  | 5.08  | 5.20  |
| 16          | 3.00                          | 3.65  | 4.05  | 4.33  | 4.56  | 4.74  | 4.90  | 5.03  | 5.15  |
| 17          | 2.98                          | 3.63  | 4.02  | 4.30  | 4.52  | 4.70  | 4.86  | 4.99  | 5.11  |
| 18          | 2.97                          | 3.61  | 4.00  | 4.28  | 4.49  | 4.67  | 4.82  | 4.96  | 5.07  |
| 19          | 2.96                          | 3.59  | 3.98  | 4.25  | 4.47  | 4.65  | 4.79  | 4.92  | 5.04  |
| 20          | 2.95                          | 3.58  | 3.96  | 4.23  | 4.45  | 4.62  | 4.77  | 4.90  | 5.01  |
| 24          | 2.92                          | 3.53  | 3.90  | 4.17  | 4.37  | 4.54  | 4.68  | 4.81  | 4.92  |
| 30          | 2.89                          | 3.49  | 3.85  | 4.10  | 4.30  | 4.46  | 4.60  | 4.72  | 4.82  |
| 40          | 2.86                          | 3.44  | 3.79  | 4.04  | 4.23  | 4.39  | 4.52  | 4.63  | 4.73  |
| 60          | 2.83                          | 3.40  | 3.74  | 3.98  | 4.16  | 4.31  | 4.44  | 4.55  | 4.65  |
| 120         | 2.80                          | 3.36  | 3.68  | 3.92  | 4.10  | 4.24  | 4.36  | 4.47  | 4.56  |
| $\infty$    | 2.77                          | 3.31  | 3.63  | 3.86  | 4.03  | 4.17  | 4.29  | 4.39  | 4.47  |

From Table A.7 in *Introductory Biological Statistics* by Hampton and Havel, second edition, Waveland Press, Inc., 2006, page 162.