

**Table A-5** *F* Distribution ($\alpha = 0.025$ in the right tail)

| | | Numerator degrees of freedom (df_1) | | | | | | | | |
|---|----------|---|--------|--------|--------|--------|--------|--------|--------|--------|
| Denominator degrees of freedom (df_2) | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | 1 | 647.79 | 799.50 | 864.16 | 899.58 | 921.85 | 937.11 | 948.22 | 956.66 | 963.28 |
| | 2 | 38.506 | 39.000 | 39.165 | 39.248 | 39.298 | 39.331 | 39.335 | 39.373 | 39.387 |
| | 3 | 17.443 | 16.044 | 15.439 | 15.101 | 14.885 | 14.735 | 14.624 | 14.540 | 14.473 |
| | 4 | 12.218 | 10.649 | 9.9792 | 9.6045 | 9.3645 | 9.1973 | 9.0741 | 8.9796 | 8.9047 |
| | 5 | 10.007 | 8.4336 | 7.7636 | 7.3879 | 7.1464 | 6.9777 | 6.8531 | 6.7572 | 6.6811 |
| | 6 | 8.8131 | 7.2599 | 6.5988 | 6.2272 | 5.9876 | 5.8198 | 5.6955 | 5.5996 | 5.5234 |
| | 7 | 8.0727 | 6.5415 | 5.8898 | 5.5226 | 5.2852 | 5.1186 | 4.9949 | 4.8993 | 4.8232 |
| | 8 | 7.5709 | 6.0595 | 5.4160 | 5.0526 | 4.8173 | 4.6517 | 4.5286 | 4.4333 | 4.3572 |
| | 9 | 7.2093 | 5.7147 | 5.0781 | 4.7181 | 4.4844 | 4.3197 | 4.1970 | 4.1020 | 4.0260 |
| | 10 | 6.9367 | 5.4564 | 4.8256 | 4.4683 | 4.2361 | 4.0721 | 3.9498 | 3.8549 | 3.7790 |
| | 11 | 6.7241 | 5.2559 | 4.6300 | 4.2751 | 4.0440 | 3.8807 | 3.7586 | 3.6638 | 3.5879 |
| | 12 | 6.5538 | 5.0959 | 4.4742 | 4.1212 | 3.8911 | 3.7283 | 3.6065 | 3.5118 | 3.4358 |
| | 13 | 6.4143 | 4.9653 | 4.3472 | 3.9959 | 3.7667 | 3.6043 | 3.4827 | 3.3880 | 3.3120 |
| | 14 | 6.2979 | 4.8567 | 4.2417 | 3.8919 | 3.6634 | 3.5014 | 3.3799 | 3.2853 | 3.2093 |
| | 15 | 6.1995 | 4.7650 | 4.1528 | 3.8043 | 3.5764 | 3.4147 | 3.2934 | 3.1987 | 3.1227 |
| | 16 | 6.1151 | 4.6867 | 4.0768 | 3.7294 | 3.5021 | 3.3406 | 3.2194 | 3.1248 | 3.0488 |
| | 17 | 6.0420 | 4.6189 | 4.0112 | 3.6648 | 3.4379 | 3.2767 | 3.1556 | 3.0610 | 2.9849 |
| | 18 | 5.9781 | 4.5597 | 3.9539 | 3.6083 | 3.3820 | 3.2209 | 3.0999 | 3.0053 | 2.9291 |
| | 19 | 5.9216 | 4.5075 | 3.9034 | 3.5587 | 3.3327 | 3.1718 | 3.0509 | 2.9563 | 2.8801 |
| | 20 | 5.8715 | 4.4613 | 3.8587 | 3.5147 | 3.2891 | 3.1283 | 3.0074 | 2.9128 | 2.8365 |
| | 21 | 5.8266 | 4.4199 | 3.8188 | 3.4754 | 3.2501 | 3.0895 | 2.9686 | 2.8740 | 2.7977 |
| | 22 | 5.7863 | 4.3828 | 3.7829 | 3.4401 | 3.2151 | 3.0546 | 2.9338 | 2.8392 | 2.7628 |
| | 23 | 5.7498 | 4.3492 | 3.7505 | 3.4083 | 3.1835 | 3.0232 | 2.9023 | 2.8077 | 2.7313 |
| | 24 | 5.7166 | 4.3187 | 3.7211 | 3.3794 | 3.1548 | 2.9946 | 2.8738 | 2.7791 | 2.7027 |
| | 25 | 5.6864 | 4.2909 | 3.6943 | 3.3530 | 3.1287 | 2.9685 | 2.8478 | 2.7531 | 2.6766 |
| | 26 | 5.6586 | 4.2655 | 3.6697 | 3.3289 | 3.1048 | 2.9447 | 2.8240 | 2.7293 | 2.6528 |
| | 27 | 5.6331 | 4.2421 | 3.6472 | 3.3067 | 3.0828 | 2.9228 | 2.8021 | 2.7074 | 2.6309 |
| | 28 | 5.6096 | 4.2205 | 3.6264 | 3.2863 | 3.0626 | 2.9027 | 2.7820 | 2.6872 | 2.6106 |
| | 29 | 5.5878 | 4.2006 | 3.6072 | 3.2674 | 3.0438 | 2.8840 | 2.7633 | 2.6686 | 2.5919 |
| | 30 | 5.5675 | 4.1821 | 3.5894 | 3.2499 | 3.0265 | 2.8667 | 2.7460 | 2.6513 | 2.5746 |
| | 40 | 5.4239 | 4.0510 | 3.4633 | 3.1261 | 2.9037 | 2.7444 | 2.6238 | 2.5289 | 2.4519 |
| | 60 | 5.2856 | 3.9253 | 3.3425 | 3.0077 | 2.7863 | 2.6274 | 2.5068 | 2.4117 | 2.3344 |
| | 120 | 5.1523 | 3.8046 | 3.2269 | 2.8943 | 2.6740 | 2.5154 | 2.3948 | 2.2994 | 2.2217 |
| | ∞ | 5.0239 | 3.6889 | 3.1161 | 2.7858 | 2.5665 | 2.4082 | 2.2875 | 2.1918 | 2.1136 |

(continued)