# Anhang A

# Verteilungs-Datenblätter

Die folgenden Abschnitte stellen die wichtigsten Eigenschaften der verschiedenen in früheren Kapiteln behandelten Verteilungen zusammen.

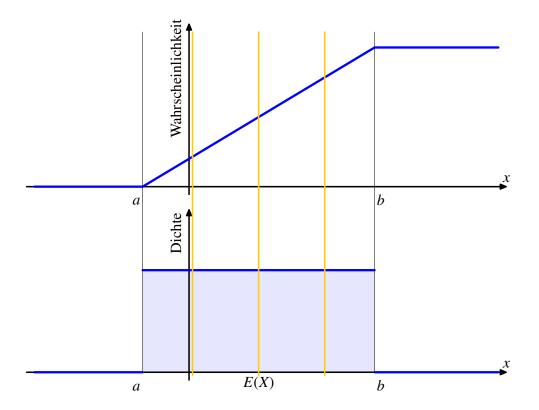
# A.1 Gleichverteilung

#### A.1.1 Steckbrief

Name	Gleichverteilung
Dichtefunktion	$\begin{cases} \frac{1}{b-a} & a \le x \le b \\ 0 & \text{sonst} \end{cases}$
Verteilungsfunktion	$\begin{cases} 0 & x \le a \\ \frac{x-a}{b-a} & x \le a \le b \\ 1 & x > b \end{cases}$
Erwartungswert	$\frac{a+b}{2}$
Varianz	$\frac{(b-a)^2}{12}$
Median	$\frac{a+b}{2}$
$P( X - E(X)  > \varepsilon)$	$1 - \frac{2\varepsilon}{b - a} \text{ für } \varepsilon < \frac{b - a}{2}$
Anwendungen	<ul><li>Verteilung von Zufallszahlen</li><li>Keine bevorzugten Werte</li></ul>

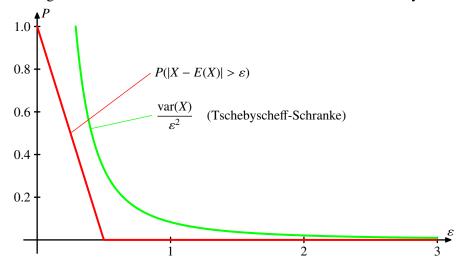
### A.1.2 Verteilungsfunktion und Wahrscheinlichkeitsdichte

Verteilungsfunktion (oben) und Wahrscheinlichkeitsdichte (unten) der Gleichverteilung:



# A.1.3 Wahrscheinlichkeit einer grossen Abweichung

Wahrscheinlichkeit einer Abweichung vom Mittelwert einer in [0, 1] gleichverteilten Zufallsvariable (rot) im Vergleich mit der oberen Schranke aus dem Satz von Tschebyscheff (grün):



#### A.1.4 Parameter schätzen

Die Parameter a und b der Gleichverteilung können mit den erwartungstreuen Schätzern

$$\hat{a}(x_1, \dots, x_n) = \frac{n+1}{n} \min(x_1, \dots, x_n)$$
$$\hat{b}(x_1, \dots, x_n) = \frac{n+1}{n} \max(x_1, \dots, x_n)$$

geschätzt werden.

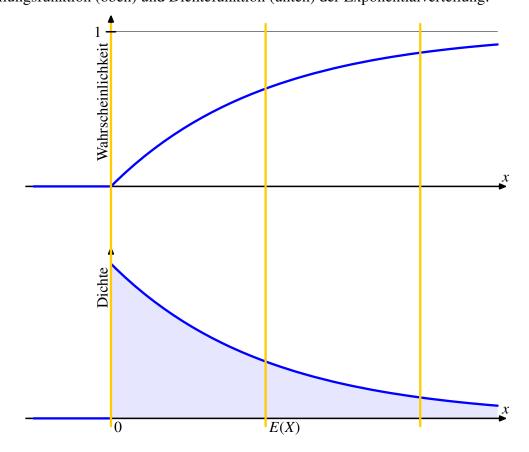
# A.2 Exponentialverteilung

# A.2.1 Steckbrief

Name	Exponentialverteilung
Dichtefunktion	$ae^{-ax},  a > 0$
Verteilungsfunktion	$1 - e^{-ax}$
Erwartungswert	$\frac{1}{a}$
Varianz	$\frac{1}{a^2}$
Median	$\frac{1}{a}\log 2$
$P( X - E(X)  > \varepsilon)$	$\begin{cases} e^{-a\varepsilon - 1} & \text{für } \varepsilon > \frac{1}{a} \\ 1 - e^{a\varepsilon - 1} + e^{-a\varepsilon - 1} & \text{für } \varepsilon \le \frac{1}{a} \end{cases}$
Anwendungen	<ul><li> Prozess ohne Erinnerungsvermögen</li><li> Radioaktivität</li></ul>

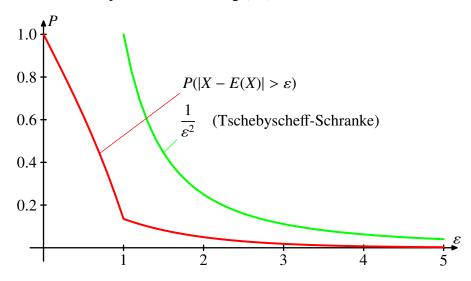
# A.2.2 Verteilungsfunktion und Wahrscheinlichkeitsdichte

Verteilungsfunktion (oben) und Dichtefunktion (unten) der Exponentialverteilung:



### A.2.3 Wahrscheinlichkeit grosser Abweichungen

Wahrscheinlichkeit für eine grosse Abweichung bei einer Exponentialverteilten Zufallsvariable, oben die durch den Satz von Tschebyscheff gegebene Schranke (grün), unten die exakte Rechnung mit Hilfe der Exponentialvereteilung (rot):



#### A.2.4 Parameter schätzen

Der Parameter 1/a kann mit dem erwartungstreuen Schätzer

$$\frac{1}{\hat{a}(x_1,\ldots,x_n)} = \frac{x_1 + \cdots + x_n}{n}$$

geschätzt werden.

# A.2.5 Erlang-Verteilungen

Seien  $X_i$  unabhängige, identisch mit Parameter a exponentialverteilte Zufallsvariablen. Dann ist  $X_1 + \cdots + X_n$  Erlang-verteilt. Die Erlang-Verteilungen wurden für die Analyse von Telefonzentralen erfunden, und sind allgemein in der Queueing-Theorie nützlich. Die Wahrscheinlichkeitsdichte und die Verteilungsfunktionen sind

$$F_{X_1 + \dots + X_k}(x) = \begin{cases} 1 - e^{-ax} \sum_{i=0}^{k-1} \frac{(ax)^i}{i!} & x \ge 0\\ 0 & x < 0 \end{cases}$$
$$\varphi_{X_1 + \dots + X_k}(x) = \begin{cases} a^k \frac{x^{k-1}}{(k-1)!} e^{-ax} & x \ge 0\\ 0 & x < 0. \end{cases}$$

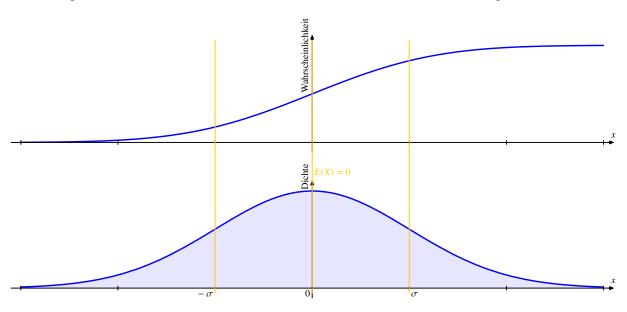
# A.3 Normalverteilung

### A.3.1 Steckbrief

Name	Normalverteilung
Dichtefunktion	$\frac{1}{\sqrt{2\pi}\sigma}e^{-\frac{(x-\mu)^2}{2\sigma^2}}$
Verteilungsfunktion	keine elementare Funktion
Erwartungswert	$\mu$
Varianz	$\sigma^2$
Median	$\mu$
$P( X - E(X)  > \varepsilon)$	keine einfache Formel
Anwendungen	<ul> <li>Messwerte</li> <li>Summe vieler kleiner Einflüsse vergleichbar grosser Varianz (Zentraler Grenzwertsatz)</li> <li>Approximation der Binomialverteilung</li> </ul>

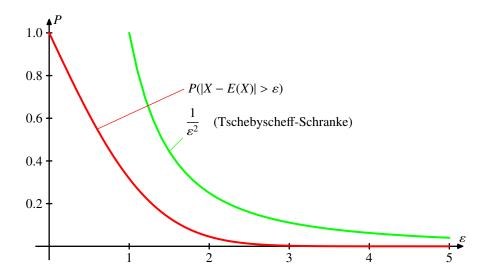
# A.3.2 Verteilungsfunktion und Wahrscheinlichkeitsdichte

Verteilungsfunktion (oben) und Dichtefunktion (unten) der Normalverteilung:



# A.3.3 Wahrscheinlichkeit einer grossen Abweichung

Vergleich der Wahrscheinlichkeit für eine grosse Abweichung für die Normalverteilung (rot) und die Schranke von Tschebyscheff (grün):



#### A.3.4 Parameter schätzen

Die Parameter  $\mu$  und  $\sigma$  können mit den erwartungstreuen Schätzern

$$\hat{\mu}(x_1, \dots, x_n) = \frac{x_1 + \dots + x_n}{n}$$

$$\hat{\sigma}(x_1, \dots, x_n)^2 = \frac{1}{n-1} \left( \sum_{i=1}^n x_i^2 - \frac{1}{n} \left( \sum_{i=1}^n x_i \right)^2 \right)$$

geschätzt werden.

Der Mittelwert ist  $\hat{\mu}(x_1, \dots, x_n)$  ist normalverteilt mit Erwartungswert  $\mu$  und Varianz  $\frac{1}{n}\sigma^2$ . Die Stichprobenvarianz  $\hat{\sigma}(x_1, \dots, x_n)^2/\sigma^2$  ist  $\chi^2$ -verteilt mit n-1 Freiheitsgraden.

#### A.3.5 Zentraler Grenzwertsatz

Der zentrale Grenzwertsatz besagt, dass die Verteilungsfunktion einer Summe einer grossen Zahl von Zufallsvariablen unter milden Voraussetzungen gegen die Verteilungsfunktion einer Normalverteilung konvergiert. Dies rechtfertigt den Einsatz der Normalverteilung als Modell für Prozesse, in denen eine grosse Zahl von vergleichbar grossen Einflüssen zu einem Effekt beitragen, zum Beispiel bei Messwerten.

## A.3.6 Standardisierung

Ist X eine normalverteilte Zufallsvariable, dann ist

$$Z = \frac{X - \mu}{\sigma}$$

eine normalverteilte Zufallsvariable mit Erwartungswert 0 und Varianz 1, d. h. eine standardnormalverteilte Zufallsvariable. Für die Standardnormalverteilung ist im Tabellenanhang eine Tabelle der Verteilungsfunktion sowie einzelner Quantilen zu finden.

Man beachte, dass die Zufallsvariable Z nicht mehr normalverteilt ist, wenn man  $\mu$  und  $\sigma$  durch Schätzwerte ersetzt, die resultierende Verteilung ist dann eine t-Verteilung.

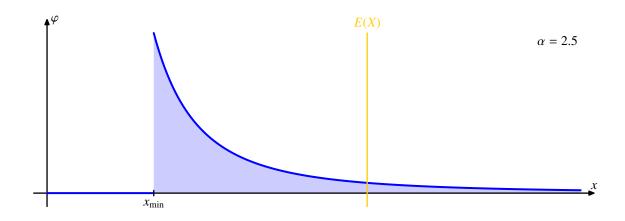
# A.4 Potenzgesetz, Pareto-Verteilung

# A.4.1 Steckbrief

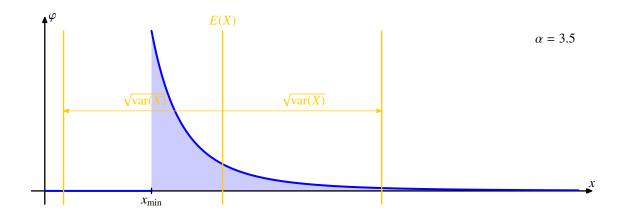
Name	Potenzverteilung, Pareto-Verteilung
Dichtefunktion	$\begin{cases} \frac{\alpha - 1}{x_{\min}} \left(\frac{x}{x_{\min}}\right)^{-\alpha} & x > x_{\min} \\ 0 & \text{sonst} \end{cases}$
Verteilungsfunktion	$($ $)$ $1-\alpha$
Erwartungswert	$\frac{\alpha-1}{\alpha-2}x_{\min}$ , undefiniert für $\alpha \leq 2$
Varianz	$\left(\frac{\alpha-1}{\alpha-3}-\left(\frac{\alpha-1}{\alpha-2}\right)^2\right)x_{\min}^2$ , undefiniert für $\alpha \leq 3$
$P( X - E(X)  > \varepsilon)$	
Median	$2^{\frac{1}{\alpha-1}}x_{\min}$
Anwendungen	<ul> <li>Häufkeitsverteilung für skaleninvariante Prozesse</li> <li>Einkommensverteilung</li> <li>Grösse und Häufigkeit von Mondkratern</li> <li>Verkaufszahlen von Büchern</li> <li>Einwohnerzahlen von Städten</li> </ul>

### A.4.2 Wahrscheinlichkeitsdichte

Wahrscheinlichkeitsdichte einer Potenzverteilung mit  $\alpha = 2.5$ , diese Verteilung hat keine Varianz:



Wahrscheinlichkeitsdichte einer Potenzverteilung mit  $\alpha = 3.5$ :



# A.4.3 80/20-Regeln

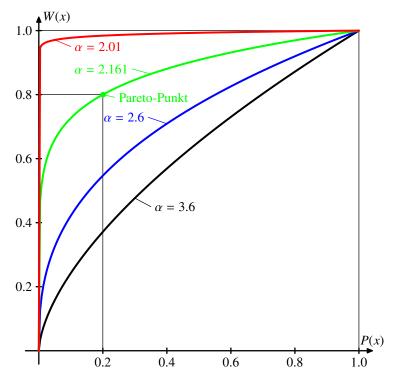
Potenzgesetze geben Anlass zu 80/20-Regeln. Wir bezeichnen die Wahrscheinlichkeit des Auftretens von Werten x > 0 mit P(x) = 1 - F(x) und den Anteil des Erwartungswertes dieser Wert am gesamten Erwartungswert mit

$$W(x) = \frac{\int_{x}^{\infty} \xi \varphi(\xi) d\xi}{\int_{x_{\min}}^{\infty} \xi \varphi(\xi) d\xi}.$$

Man kann W(x) als den Anteil des "Wertes" interpretieren, den die Werte oberhalb von x beisteuern. Es ist klar, dass P(x) = 1 auch bedeutet, W(x) = 1: 100% der Werte tragen 100% des Wertes bei. Die Definitionen besagen, dass für beliebiges x der obere P(x)-Anteil der Werte den Anteil W(x) des gesamten Wertes beitragen. Es gilt

$$W(x) = P(x)^{\frac{\alpha-2}{\alpha-1}}.$$

Kurven (P(x), W(x)) für verschiedene Werte von  $\alpha$ :



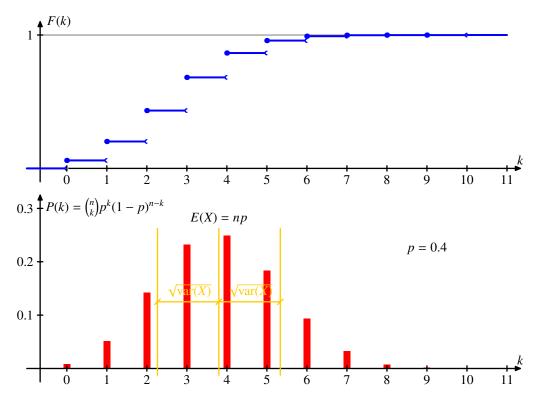
# A.5 Binomialverteilung

#### A.5.1 Steckbrief

Name	Binomialverteilung
Wahrscheinlichkeit	$P(k) = \binom{n}{k} p^k (1-p)^{n-k}$
Verteilungsfunktion	$F(k) = \sum_{i=0}^{k} {n \choose i} p^{i} (1-p)^{n-i}$
Erwartungswert	np
Varianz	np(1-p)
Anwendungen	Anzahl Eintreten eines Bernoulliexperimentes

# A.5.2 Verteilungsfunktion und Wahrscheinlichkeitsverteilung

Wahrscheinlichkeitsverteilung und Verteilungsfunktion einer Binomialverteilung mit p = 0.4 und n = 10:



#### A.5.3 Parameter schätzen

Wir ein Bernoulliexperiment mit m Wiederholungen n mal wiederholt, erhält man n Werte  $k_1, \ldots, k_n$ . Die Wahrscheinlichkeit p kann daraus mit Hilfe des Mittelwertes erwartungstreu geschätzt werden:

$$\hat{p}(k_1,\ldots,k_n)=\frac{k_1+\cdots+k_n}{n}.$$

Als Schätzer für den Parameter m liegt das Maximum nahe, da aber grosse Werte sehr selten sind, ist dieser Schätzer von unbrauchbarer Qualität.

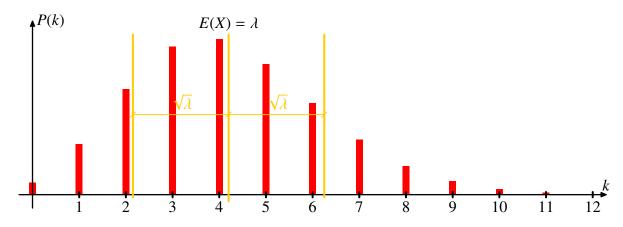
# A.6 Poisson-Verteilung

### A.6.1 Steckbrief

Name	Poissonverteilung
Wahrscheinlichkeit	$P_{\lambda}(k) = \frac{\lambda^k}{k!} e^{-\lambda}$
Erwartungswert	λ
Varianz	λ
Anwendungen	<ul> <li>Anzahl Ereignisse mit exponentialverteilten Intervallen</li> <li>Approximation der Binomialverteilung für seltene Ereignisse, die mit Rate λ eintreten</li> </ul>

# A.6.2 Wahrscheinlichkeitsverteilung

Wahrscheinlichkeitsverteilung der Poisson-Verteilung für  $\lambda = 4.2$ ,  $E(X) = \lambda$  und  $var(X) = \sqrt{\lambda}$ .



# A.6.3 Schätzung des Parameters $\lambda$

Der Parameter  $\lambda$  ist der Erwartungswert einer Poisson-Verteilung, er lässt sich daher mit dem Mittelwert

$$\hat{\lambda}(k_1,\ldots,k_n)=\frac{k_1+\cdots+k_n}{n}$$

erwartungstreu schätzen.

# Anhang B

# **Tabellen**

p	X
0.75	0.6745
0.8	0.8416
0.9	1.2816
0.95	1.6449
0.975	1.9600
0.99	2.3263
0.995	2.5758
0.999	3.0902
0.9995	3.2905

Tabelle B.1: Quantilen der Normalverteilung

х	+0.00	+0.01	+0.02	+0.03	+0.04	+0.05	+0.06	+0.07	+0.08	+0.09
0.0	0.5000	0.5040	0.5080	0.5120	0.5160	0.5199	0.5239	0.5279	0.5319	0.5359
0.1	0.5398	0.5438	0.5478	0.5517	0.5557	0.5596	0.5636	0.5675	0.5714	0.5753
0.2	0.5793	0.5832	0.5871	0.5910	0.5948	0.5987	0.6026	0.6064	0.6103	0.6141
0.3	0.6179	0.6217	0.6255	0.6293	0.6331	0.6368	0.6406	0.6443	0.6480	0.6517
0.4	0.6554	0.6591	0.6628	0.6664	0.6700	0.6736	0.6772	0.6808	0.6844	0.6879
0.5	0.6915	0.6950	0.6985	0.7019	0.7054	0.7088	0.7123	0.7157	0.7190	0.7224
0.6	0.7257	0.7291	0.7324	0.7357	0.7389	0.7422	0.7454	0.7486	0.7517	0.7549
0.7	0.7580	0.7611	0.7642	0.7673	0.7704	0.7734	0.7764	0.7794	0.7823	0.7852
0.8	0.7881	0.7910	0.7939	0.7967	0.7995	0.8023	0.8051	0.8078	0.8106	0.8133
0.9	0.8159	0.8186	0.8212	0.8238	0.8264	0.8289	0.8315	0.8340	0.8365	0.8389
1.0	0.8413	0.8438	0.8461	0.8485	0.8508	0.8531	0.8554	0.8577	0.8599	0.8621
1.1	0.8643	0.8665	0.8686	0.8708	0.8729	0.8749	0.8770	0.8790	0.8810	0.8830
1.2	0.8849	0.8869	0.8888	0.8907	0.8925	0.8944	0.8962	0.8980	0.8997	0.9015
1.3	0.9032	0.9049	0.9066	0.9082	0.9099	0.9115	0.9131	0.9147	0.9162	0.9177
1.4	0.9192	0.9207	0.9222	0.9236	0.9251	0.9265	0.9279	0.9292	0.9306	0.9319
1.5	0.9332	0.9345	0.9357	0.9370	0.9382	0.9394	0.9406	0.9418	0.9429	0.9441
1.6	0.9452	0.9463	0.9474	0.9484	0.9495	0.9505	0.9515	0.9525	0.9535	0.9545
1.7	0.9554	0.9564	0.9573	0.9582	0.9591	0.9599	0.9608	0.9616	0.9625	0.9633
1.8	0.9641	0.9649	0.9656	0.9664	0.9671	0.9678	0.9686	0.9693	0.9699	0.9706
1.9	0.9713	0.9719	0.9726	0.9732	0.9738	0.9744	0.9750	0.9756	0.9761	0.9767
2.0	0.9772	0.9778	0.9783	0.9788	0.9793	0.9798	0.9803	0.9808	0.9812	0.9817
2.1	0.9821	0.9826	0.9830	0.9834	0.9838	0.9842	0.9846	0.9850	0.9854	0.9857
2.2	0.9861	0.9864	0.9868	0.9871	0.9875	0.9878	0.9881	0.9884	0.9887	0.9890
2.3	0.9893	0.9896	0.9898	0.9901	0.9904	0.9906	0.9909	0.9911	0.9913	0.9916
2.4	0.9918	0.9920	0.9922	0.9925	0.9927	0.9929	0.9931	0.9932	0.9934	0.9936
2.5	0.9938	0.9940	0.9941	0.9943	0.9945	0.9946	0.9948	0.9949	0.9951	0.9952
2.6	0.9953	0.9955	0.9956	0.9957	0.9959	0.9960	0.9961	0.9962	0.9963	0.9964
2.7	0.9965	0.9966	0.9967	0.9968	0.9969	0.9970	0.9971	0.9972	0.9973	0.9974
2.8	0.9974	0.9975	0.9976	0.9977	0.9977	0.9978	0.9979	0.9979	0.9980	0.9981
2.9	0.9981	0.9982	0.9982	0.9983	0.9984	0.9984	0.9985	0.9985	0.9986	0.9986
3.0	0.9987	0.9987	0.9987	0.9988	0.9988	0.9989	0.9989	0.9989	0.9990	0.9990

Tabelle B.2: Verteilungsfunktion der Normalverteilung

	0.04	0.07	0.1	0.07	0.7	0.55	0.0	0.05	0.00
k	p = 0.01	p = 0.05	p = 0.1	p = 0.25	p = 0.5	p = 0.75	p = 0.9	p = 0.95	p = 0.99
1	0.000	0.004	0.016	0.102	0.455	1.323	2.706	3.841	6.635
2	0.020	0.103	0.211	0.575	1.386	2.773	4.605	5.991	9.210
3	0.115	0.352	0.584	1.213	2.366	4.108	6.251	7.815	11.345
4	0.297	0.711	1.064	1.923	3.357	5.385	7.779	9.488	13.277
5	0.554	1.145	1.610	2.675	4.351	6.626	9.236	11.070	15.086
6	0.872	1.635	2.204	3.455	5.348	7.841	10.645	12.592	16.812
7	1.239	2.167	2.833	4.255	6.346	9.037	12.017	14.067	18.475
8	1.646	2.733	3.490	5.071	7.344	10.219	13.362	15.507	20.090
9	2.088	3.325	4.168	5.899	8.343	11.389	14.684	16.919	21.666
10	2.558	3.940	4.865	6.737	9.342	12.549	15.987	18.307	23.209
11	3.053	4.575	5.578	7.584	10.341	13.701	17.275	19.675	24.725
12	3.571	5.226	6.304	8.438	11.340	14.845	18.549	21.026	26.217
13	4.107	5.892	7.042	9.299	12.340	15.984	19.812	22.362	27.688
14	4.660	6.571	7.790	10.165	13.339	17.117	21.064	23.685	29.141
15	5.229	7.261	8.547	11.037	14.339	18.245	22.307	24.996	30.578
16	5.812	7.962	9.312	11.912	15.338	19.369	23.542	26.296	32.000
17	6.408	8.672	10.085	12.792	16.338	20.489	24.769	27.587	33.409
18	7.015	9.390	10.865	13.675	17.338	21.605	25.989	28.869	34.805
19	7.633	10.117	11.651	14.562	18.338	22.718	27.204	30.144	36.191
20	8.260	10.851	12.443	15.452	19.337	23.828	28.412	31.410	37.566
21	8.897	11.591	13.240	16.344	20.337	24.935	29.615	32.671	38.932
22	9.542	12.338	14.041	17.240	21.337	26.039	30.813	33.924	40.289
23	10.196	13.091	14.848	18.137	22.337	27.141	32.007	35.172	41.638
24	10.856	13.848	15.659	19.037	23.337	28.241	33.196	36.415	42.980
25	11.524	14.611	16.473	19.939	24.337	29.339	34.382	37.652	44.314
26	12.198	15.379	17.292	20.843	25.336	30.435	35.563	38.885	45.642
27	12.879	16.151	18.114	21.749	26.336	31.528	36.741	40.113	46.963
28	13.565	16.928	18.939	22.657	27.336	32.620	37.916	41.337	48.278
29	14.256	17.708	19.768	23.567	28.336	33.711	39.087	42.557	49.588
30	14.953	18.493	20.599	24.478	29.336	34.800	40.256	43.773	50.892
50	29.707	34.764	37.689	42.942	49.335	56.334	63.167	67.505	76.154
100	70.065	77.929	82.358	90.133	99.334	109.141	118.498	124.342	135.807
500	429.388	449.147	459.926	478.323	499.333	520.950	540.930	553.127	576.493
1000	898.912	927.594	943.133	969.484	999.333	1029.790	1057.724	1074.679	1106.969
							1		

Tabelle B.3: Quantilen der  $\chi^2$ -Verteilung

n	p = 0.01	p = 0.05	p = 0.1	p = 0.25	p = 0.5	p = 0.75	p = 0.9	p = 0.95	p = 0.99
1	0.01000	$\frac{p - 0.03}{0.05000}$	$\frac{p - 0.1}{0.10000}$	0.25000	$\frac{p - 0.5}{0.50000}$	$\frac{p - 0.75}{0.75000}$	0.90000	$\frac{p - 0.95}{0.95000}$	0.99000
2	0.01400	0.06749	0.12955	0.29289	0.51764	0.70711	0.96700	1.09799	1.27279
3	0.01699	0.07919	0.14714	0.31117	0.51469	0.75394	0.97828	1.10166	1.35889
4	0.01943	0.08789	0.15899	0.32023	0.51104	0.76419	0.98531	1.13043	1.37774
5	0.02152	0.09471	0.16750	0.32490	0.52449	0.76741	0.99948	1.13916	1.40242
6	0.02336	0.10022	0.17385	0.32717	0.53193	0.77028	1.00520	1.14634	1.41435
7	0.02501	0.10479	0.17873	0.32804	0.53635	0.77552	1.00929	1.15373	1.42457
8	0.02650	0.10863	0.18256	0.32802	0.53916	0.77971	1.01346	1.15859	1.43272
9	0.02786	0.11191	0.18560	0.32745	0.54109	0.78246	1.01731	1.16239	1.43878
10	0.02912	0.11473	0.18803	0.32975	0.54258	0.78454	1.02016	1.16582	1.44397
11	0.03028	0.11718	0.19000	0.33304	0.54390	0.78633	1.02249	1.16885	1.44837
12	0.03137	0.11933	0.19160	0.33570	0.54527	0.78802	1.02458	1.17139	1.45207
13	0.03239	0.12123	0.19291	0.33789	0.54682	0.78966	1.02649	1.17357	1.45527
14	0.03334	0.12290	0.19396	0.33970	0.54856	0.79122	1.02823	1.17552	1.45810
15	0.03424	0.12439	0.19482	0.34122	0.55002	0.79259	1.02977	1.17728	1.46060
16	0.03509	0.12573	0.19552	0.34250	0.55123	0.79377	1.03113	1.17888	1.46283
17	0.03589	0.12692	0.19607	0.34360	0.55228	0.79482	1.03237	1.18032	1.46483
18	0.03665	0.12799	0.19650	0.34454	0.55319	0.79578	1.03351	1.18162	1.46664
19	0.03738	0.12895	0.19684	0.34535	0.55400	0.79667	1.03457	1.18282	1.46830
20	0.03807	0.12982	0.19709	0.34607	0.55475	0.79752	1.03555	1.18392	1.46981
30	0.04354	0.13510	0.20063	0.35087	0.56047	0.80362	1.04243	1.19164	1.48009
50	0.05005	0.13755	0.20794	0.35713	0.56644	0.80988	1.04933	1.19921	1.48969
100	0.05698	0.14472	0.21370	0.36331	0.57269	0.81634	1.05627	1.20666	1.49864
200	0.06049	0.14887	0.21816	0.36784	0.57725	0.82099	1.06117	1.21180	1.50458

Tabelle B.4: Quantilen für den Kolmogorov-Smirnov-Test

k	0.75	0.8	0.9	0.95	0.975	0.99	0.995
1	1.0000	1.3764	3.0777	6.3138	12.7062	31.8205	63.6567
2	0.8165	1.0607	1.8856	2.9200	4.3027	6.9646	9.9248
3	0.7649	0.9785	1.6377	2.3534	3.1824	4.5407	5.8409
4	0.7407	0.9410	1.5332	2.1318	2.7764	3.7469	4.6041
5	0.7267	0.9195	1.4759	2.0150	2.5706	3.3649	4.0321
6	0.7176	0.9057	1.4398	1.9432	2.4469	3.1427	3.7074
7	0.7111	0.8960	1.4149	1.8946	2.3646	2.9980	3.4995
8	0.7064	0.8889	1.3968	1.8595	2.3060	2.8965	3.3554
9	0.7027	0.8834	1.3830	1.8331	2.2622	2.8214	3.2498
10	0.6998	0.8791	1.3722	1.8125	2.2281	2.7638	3.1693
11	0.6974	0.8755	1.3634	1.7959	2.2010	2.7181	3.1058
12	0.6955	0.8726	1.3562	1.7823	2.1788	2.6810	3.0545
13	0.6938	0.8702	1.3502	1.7709	2.1604	2.6503	3.0123
14	0.6924	0.8681	1.3450	1.7613	2.1448	2.6245	2.9768
15	0.6912	0.8662	1.3406	1.7531	2.1314	2.6025	2.9467
16	0.6901	0.8647	1.3368	1.7459	2.1199	2.5835	2.9208
17	0.6892	0.8633	1.3334	1.7396	2.1098	2.5669	2.8982
18	0.6884	0.8620	1.3304	1.7341	2.1009	2.5524	2.8784
19	0.6876	0.8610	1.3277	1.7291	2.0930	2.5395	2.8609
20	0.6870	0.8600	1.3253	1.7247	2.0860	2.5280	2.8453
21	0.6864	0.8591	1.3232	1.7207	2.0796	2.5176	2.8314
22	0.6858	0.8583	1.3212	1.7171	2.0739	2.5083	2.8188
23	0.6853	0.8575	1.3195	1.7139	2.0687	2.4999	2.8073
24	0.6848	0.8569	1.3178	1.7109	2.0639	2.4922	2.7969
25	0.6844	0.8562	1.3163	1.7081	2.0595	2.4851	2.7874
26	0.6840	0.8557	1.3150	1.7056	2.0555	2.4786	2.7787
27	0.6837	0.8551	1.3137	1.7033	2.0518	2.4727	2.7707
28	0.6834	0.8546	1.3125	1.7011	2.0484	2.4671	2.7633
29	0.6830	0.8542	1.3114	1.6991	2.0452	2.4620	2.7564
30	0.6828	0.8538	1.3104	1.6973	2.0423	2.4573	2.7500
50	0.6794	0.8489	1.2987	1.6759	2.0086	2.4033	2.6778
100	0.6770	0.8452	1.2901	1.6602	1.9840	2.3642	2.6259
500	0.6750	0.8423	1.2832	1.6479	1.9647	2.3338	2.5857
$10^{3}$	0.6747	0.8420	1.2824	1.6464	1.9623	2.3301	2.5808
$10^4$	0.6745	0.8417	1.2816	1.6450	1.9602	2.3267	2.5763
$10^{5}$	0.6745	0.8416	1.2816	1.6449	1.9600	2.3264	2.5759
$10^{6}$	0.6745	0.8416	1.2816	1.6449	1.9600	2.3264	2.5758

Tabelle B.5: Quantilen der t-Verteilung

1 2 5.828 7.500 39.86 49.50 161.4 199.5 647.8 799.5 4052 5000 162.1e2 200.0e2 2.571 3.000 8.526 9.000 18.51 19.00 38.51 39.00 98.50 99.00 198.5 199.0 2.024 2.280 5.538 5.462 10.13 9.552 17.44 16.04 34.12 30.82 55.55 49.80 1.807 2.000 4.545 4.325 7.709 6.944	7	$F^\alpha_{n,m}$				ш	u			
25.0       5.828       7.500         10.0       39.86       49.50         10.0       39.86       49.50         5.0       161.4       199.5         2.5       647.8       799.5         1.0       4052       5000         0.5       162.1e2       200.0e2         25.0       2.571       3.000         10.0       8.526       9.000         0.5       18.51       19.00         2.5       18.51       19.00         2.5       18.51       39.00         0.5       38.51       39.00         1.0       98.50       99.00         0.5       198.5       199.0         2.5       10.13       9.552         2.5       17.44       16.04         1.0       5.538       5.462         2.5       17.44       16.04         1.0       4.545       49.80         25.0       1.807       2.000         10.0       4.545       4.325         2.5       12.22       10.65         1.0       21.20       18.00	$\overline{}$	$\alpha$ [%]	1	2	3	4	5	9	7	8
10.0       39.86       49.50         5.0       161.4       199.5         2.5       647.8       799.5         1.0       4052       5000         0.5       162.1e2       200.0e2         25.0       2.571       3.000         10.0       8.526       9.000         2.5       38.51       39.00         1.0       98.50       99.00         0.5       198.5       199.0         25.0       2.024       2.280         10.0       5.538       5.462         25.0       10.13       9.552         25.0       17.44       16.04         1.0       34.12       30.82         0.5       55.55       49.80         25.0       1.807       2.000         10.0       4.545       4.325         5.0       7.709       6.944         2.5       12.22       10.65         1.0       21.20       18.00	_	25.0	5.828	7.500	8.200	8.581	8.820	8.983	9.102	9.192
5.0         161.4         199.5           2.5         647.8         799.5           1.0         4052         5000           0.5         162.1e2         200.0e2           25.0         2.571         3.000           10.0         8.526         9.000           2.5         18.51         19.00           2.5         38.51         39.00           1.0         98.50         99.00           0.5         198.5         199.0           2.5         10.13         9.552           2.5         17.44         16.04           1.0         34.12         30.82           0.5         55.55         49.80           2.5         1.807         2.000           10.0         4.545         4.325           2.5         12.22         10.65           1.0         21.20         18.00		10.0	39.86	49.50	53.59	55.83	57.24	58.20	58.91	59.44
2.5         647.8         799.5           1.0         4052         5000           0.5         162.1e2         200.0e2           25.0         2.571         3.000           10.0         8.526         9.000           2.5         38.51         39.00           1.0         98.50         99.00           0.5         198.5         199.0           1.0         5.38         5.462           25.0         10.13         9.552           2.5         17.44         16.04           1.0         34.12         30.82           0.5         55.55         49.80           25.0         1.807         2.000           10.0         4.545         4.325           5.0         7.709         6.944           2.5         12.22         10.65           1.0         21.20         18.00		5.0	161.4	199.5	215.7	224.6	230.2	234.0	236.8	238.9
1.0       4052       5000         0.5       162.1e2       200.0e2         25.0       2.571       3.000         10.0       8.526       9.000         5.0       18.51       19.00         2.5       38.51       39.00         1.0       98.50       99.00         0.5       198.5       199.0         2.5       2.024       2.280         10.0       5.538       5.462         2.5       17.44       16.04         1.0       34.12       30.82         0.5       55.55       49.80         25.0       1.807       2.000         10.0       4.545       4.325         2.5       12.22       10.65         1.0       21.20       18.00		2.5	647.8	799.5	864.2	9.668	921.8	937.1	948.2	956.7
0.5       162.1e2       200.0e2         25.0       2.571       3.000         10.0       8.526       9.000         5.0       18.51       19.00         2.5       38.51       39.00         1.0       98.50       99.00         0.5       198.5       199.0         25.0       2.024       2.280         10.0       5.538       5.462         5.0       10.13       9.552         2.5       17.44       16.04         1.0       34.12       30.82         0.5       55.55       49.80         25.0       1.807       2.000         10.0       4.545       4.325         5.0       7.709       6.944         2.5       12.22       10.65         1.0       21.20       18.00		1.0	4052	2000	5403	5625	5764	5859	5928	5981
25.0       2.571       3.000         10.0       8.526       9.000         2.5       38.51       39.00         1.0       98.50       99.00         0.5       198.5       199.0         25.0       2.024       2.280         10.0       5.538       5.462         5.0       10.13       9.552         2.5       17.44       16.04         1.0       34.12       30.82         0.5       55.55       49.80         25.0       1.807       2.000         10.0       4.545       4.325         5.0       7.709       6.944         2.5       12.22       10.65         1.0       21.20       18.00		0.5	162.1e2	200.0e2	216.1e2	225.0e2	230.6e2	234.4e2	237.1e2	239.3e2
10.0       8.526       9.000         5.0       18.51       19.00         2.5       38.51       39.00         1.0       98.50       99.00         0.5       198.5       199.0         25.0       2.024       2.280         10.0       5.538       5.462         5.0       10.13       9.552         2.5       17.44       16.04         1.0       34.12       30.82         0.5       55.55       49.80         25.0       1.807       2.000         10.0       4.545       4.325         5.0       7.709       6.944         2.5       12.22       10.65         1.0       21.20       18.00	2	25.0	2.571		3.153	3.232	3.280			
5.0         18.51         19.00           2.5         38.51         39.00           1.0         98.50         99.00           0.5         198.5         199.0           25.0         2.024         2.280           10.0         5.538         5.462           5.0         10.13         9.552           2.5         17.44         16.04           1.0         34.12         30.82           0.5         55.55         49.80           25.0         1.807         2.000           10.0         4.545         4.325           5.0         7.709         6.944           2.5         12.22         10.65           1.0         21.20         18.00		10.0		9.000	9.162	9.243	9.293			
2.5       38.51       39.00         1.0       98.50       99.00         0.5       198.5       199.0         25.0       2.024       2.280         10.0       5.538       5.462         5.0       10.13       9.552         2.5       17.44       16.04         1.0       34.12       30.82         0.5       55.55       49.80         25.0       1.807       2.000         10.0       4.545       4.325         5.0       7.709       6.944         2.5       12.22       10.65         1.0       21.20       18.00		5.0		19.00	19.16	19.25	19.30			
1.0         98.50         99.00           0.5         198.5         199.0           25.0         2.024         2.280           10.0         5.538         5.462           5.0         10.13         9.552           2.5         17.44         16.04           1.0         34.12         30.82           0.5         55.55         49.80           25.0         1.807         2.000           10.0         4.545         4.325           5.0         7.709         6.944           2.5         12.22         10.65           1.0         21.20         18.00		2.5		39.00	39.17	39.25	39.30			
0.5       198.5       199.0         25.0       2.024       2.280         10.0       5.538       5.462         5.0       10.13       9.552         2.5       17.44       16.04         1.0       34.12       30.82         0.5       55.55       49.80         25.0       1.807       2.000         10.0       4.545       4.325         5.0       7.709       6.944         2.5       12.22       10.65         1.0       21.20       18.00		1.0		00.66	99.17	99.25	99.30			
25.0       2.024       2.280         10.0       5.538       5.462         5.0       10.13       9.552         2.5       17.44       16.04         1.0       34.12       30.82         0.5       55.55       49.80         25.0       1.807       2.000         10.0       4.545       4.325         5.0       7.709       6.944         2.5       12.22       10.65         1.0       21.20       18.00		0.5		199.0	199.2	199.2	199.3			
10.05.5385.4625.010.139.5522.517.4416.041.034.1230.820.555.5549.8025.01.8072.00010.04.5454.3255.07.7096.9442.512.2210.651.021.2018.00	3	25.0		2.280	2.356	2.390	2.409			
5.0       10.13       9.552         2.5       17.44       16.04         1.0       34.12       30.82         0.5       55.55       49.80         25.0       1.807       2.000         10.0       4.545       4.325         5.0       7.709       6.944         2.5       12.22       10.65         1.0       21.20       18.00		10.0		5.462	5.391	5.343	5.309			
2.5       17.44       16.04         1.0       34.12       30.82         0.5       55.55       49.80         25.0       1.807       2.000         10.0       4.545       4.325         5.0       7.709       6.944         2.5       12.22       10.65         1.0       21.20       18.00		5.0		9.552	9.277	9.117	9.013			
1.0     34.12     30.82       0.5     55.55     49.80       25.0     1.807     2.000       10.0     4.545     4.325       5.0     7.709     6.944       2.5     12.22     10.65       1.0     21.20     18.00		2.5		16.04	15.44	15.10	14.88			
0.5       55.55       49.80         25.0       1.807       2.000         10.0       4.545       4.325         5.0       7.709       6.944         2.5       12.22       10.65         1.0       21.20       18.00		1.0		30.82	29.46	28.71	28.24			
25.0     1.807     2.000       10.0     4.545     4.325       5.0     7.709     6.944       2.5     12.22     10.65       1.0     21.20     18.00		0.5			47.47	46.19				
4.545 7.709 12.22 21.20	4	25.0			2.047	2.064				
7.709 12.22 21.20		10.0			4.191	4.107				3.955
12.22 21.20		5.0			6.591	6.388		6.163		6.041
21.20		2.5	12.22		6.64	9.605				8.980
		1.0	21.20		16.69	15.98				14.80
31.33		0.5			24.26	23.15				21.35

Tabelle B.6: Quantilen-Tabelle der F-Verteilung

	11,111								
и	$\alpha$ [%]	6	10	11	12	15	20	24	30
1	25.0	9.263	9.320	9.367	9.406	9.493	9.581		9.670
	10.0	59.86	60.19	60.47	60.71	61.22	61.74		62.26
	5.0	240.5	241.9	243.0	243.9	245.9	248.0		250.1
	2.5	963.3	9.896	973.0	2.926	984.9	993.1		1001
	1.0	6022	9509	383	6106	6157	_		6261
	0.5	240.9e2	242.2e2	243.3e2	244.3e2	246.3e2	248.4e2	249.4e2	250.4e2
7	25.0	3.366	3.377	3.386	3.393	3.410	3.426	3.435	3.443
	10.0	9.381	9.392	9.401	9.408	9.425	9.441	9.450	9.458
	5.0	19.38	19.40	19.40	19.41	19.43	19.45	19.45	19.46
	2.5	39.39	39.40	39.41	39.41	39.43	39.45	39.46	39.46
	1.0	99.39	99.40	99.41	99.42	99.43	99.45	99.46	99.47
	0.5	199.4	199.4	199.4	199.4	199.4	199.4	199.5	199.5
$\omega$	25.0	2.441	2.445	2.448	2.450	2.455	2.460	2.463	2.465
	10.0	5.240	5.230	5.222	5.216	5.200	5.184	5.176	5.168
	5.0	8.812	8.786	8.763	8.745	8.703	8.660	8.639	8.617
	2.5	14.47	14.42	14.37	14.34	14.25	14.17	14.12	14.08
	1.0	27.35	27.23	27.13	27.05	26.87	26.69	26.60	26.50
	0.5	43.88	43.69	43.52	43.39	43.08	42.78	42.62	42.47
4	25.0	2.081	2.082	2.082	2.083	2.083	2.083	2.083	2.082
	10.0	3.936	3.920	3.907	3.896	3.870	3.844		3.817
	5.0	5.999	5.964	5.936	5.912	5.858	5.803	5.774	5.746
	2.5	8.905	8.844	8.794	8.751	8.657	8.560		8.461
	1.0	14.66	14.55	14.45	14.37	14.20	14.02	,	13.84
	0.5	21.14	20.97	20.82	20.70	20.44	20.17		19.89

Tabelle B.7: Quantilen-Tabelle der F-Verteilung

n         q (%)         1         2         3         4         5         6         7         8         9         10         11         12         15         20         24         30           5         250         1.692         1.831         1.884         1.894         1.894         1.891         1.891         1.891         1.892         1.881         1.882         1.882         1.882         1.880         1.878         1.870         1		$F_{n,m}^{lpha}$								ш								
25.0         1.692         1.883         1.894         1.894         1.894         1.894         1.895         1.894         1.890         1.899         1.889         1.889         1.880         1.895         1.891         1.890         1.891         1.890         1.891         1.890         1.891         1.890         1.891         1.891         1.891         1.892         3.393         3.316         3.297         3.288         3.293         3.207         3.191           5.0         6.608         5.786         5.409         5.192         5.050         4.950         4.818         4.772         4.738         4.693         4.694         4.818         4.772         4.738         4.693         4.694         4.818         4.772         4.738         4.794         4.694         4.608         6.619         6.688         6.619         6.688         6.619         6.688         6.619         6.688         6.619         6.688         6.619         6.688         6.619         6.688         6.619         6.888         7.149         4.09         4.069         4.688         6.819         2.888         3.297         3.918         3.297         3.918         3.297         3.918         3.297         3.918         3.771 </th <th>и</th> <th><math>\alpha</math> [%]</th> <th>1</th> <th>2</th> <th>8</th> <th>4</th> <th>S</th> <th>9</th> <th>7</th> <th>∞</th> <th>6</th> <th>10</th> <th>11</th> <th>12</th> <th>15</th> <th>20</th> <th>24</th> <th>30</th>	и	$\alpha$ [%]	1	2	8	4	S	9	7	∞	6	10	11	12	15	20	24	30
10.0         4.066         3.786         3.619         3.520         3.453         3.316         3.297         3.288         3.297         3.293         3.298         3.297         3.298         3.293         3.316         3.297         3.288         3.297         3.297         3.288         3.297         3.297         3.298         3.297         3.298         3.297         3.298         3.297         3.298         3.297         3.298         3.297         3.298         3.297         3.298         3.297         3.298         3.297         3.298         3.297         3.298         3.297         3.298         3.298         3.298         3.298         3.297         3.298         3.298         3.181         3.106         4.099         4.060         4.029         4.060         4.029         4.060         4.029         4.060         4.029         4.060         4.029         4.060         4.029         4.060         4.029         4.060         4.029         3.08         3.38         3.18         3.18         3.108         3.055         3.04         4.099         4.060         4.029         4.060         4.029         4.060         4.029         4.060         4.029         4.060         4.029         4.060         4.029	S	25.0	1.692	1.853	1.884	1.893	1.895	1.894	1.894	1.892		1.890	1.889	1.888	1.885	1.882	1.880	1.878
5.0         6.608         5.786         5.409         5.192         5.050         4.876         4.818         4.772         4.735         4.704         4.678         4.619         5.88         4.527         6.278         6.278           2.5         10.01         8.434         7.764         7.388         7.146         6.978         6.835         6.757         6.681         6.619         6.568         6.525         6.428         6.329         6.788           1.0         16.20         11.31         10.97         10.67         10.46         10.29         10.16         10.05         9.63         9.88         9.722         9.53         9.46           2.0         1.621         1.762         1.784         1.787         1.784         1.787         1.784         1.870         1.773         1.771         1.771         1.771         1.771         1.771         1.771         1.771         1.771         1.771         1.771         1.771         1.771         1.771         1.771         1.771         1.774         4.937         4.947         4.907         4.907         4.907         4.907         4.907         4.908         8.917         5.818         5.917         5.908         5.987         5		10.0	4.060	3.780	3.619	3.520	3.453	3.405	3.368	3.339		3.297	3.282	3.268	3.238	3.207	3.191	3.174
2.5         10.01         8.434         7.764         7.388         7.146         6.978         6.853         6.757         6.681         6.516         6.526         6.428         6.329         6.389         9.72         9.53         9.46           1.0         16.26         13.27         12.06         11.39         10.97         10.67         10.46         10.29         10.16         10.05         9.63         9.888         9.722         9.53         9.466           0.5         22.78         1.831         1.556         14.94         14.51         14.20         13.96         13.77         13.62         13.49         13.83         13.15         12.90         12.88         9.72         9.53         9.466           25.0         1.621         1.762         1.784         1.784         1.779         1.774         4.09         4.02         4.02         2.92         2.89         3.81         3.88         3.81         3.84         4.84         4.20         4.147         4.09         4.02         4.02         4.02         4.02         4.02         4.02         4.02         4.03         3.84         3.84         3.84         3.84         3.84         4.20         4.147         4.09<		5.0	809.9	5.786	5.409	5.192	5.050	4.950	4.876	4.818		4.735	4.704	4.678	4.619	4.558	4.527	4.496
1.0         16.26         13.27         12.06         11.39         10.97         10.67         10.46         10.29         10.16         10.05         9.963         9.888         9.722         9.553         9.466           25.0         1.621         1.762         1.784         1.781         1.420         13.96         13.77         13.49         13.38         13.15         12.90         12.78           25.0         1.621         1.762         1.784         1.785         1.782         1.773         1.771         1.762         1.767         1.762         1.773         1.771         1.760         1.767         1.762         1.773         1.771         1.769         1.767         1.767         1.773         1.771         1.769		2.5	10.01	8.434	7.764	7.388	7.146	8.6978	6.853	6.757		6.619	6.568	6.525	6.428	6.329	6.278	6.227
0.5         2.7.8         18.31         16.53         15.56         14.94         14.51         14.20         13.96         13.77         13.62         13.49         13.38         13.15         12.90         12.78           25.0         1.621         1.762         1.784         1.787         1.785         1.782         1.779         1.771         1.769         1.767         1.762         1.757         1.754           10.0         3.776         3.463         3.289         3.181         3.108         3.055         3.014         2.983         2.937         2.920         2.905         2.811         2.88         2.818         2.82         2.82         2.927         2.988         2.827         3.044         4.099         4.060         4.027         4.000         3.938         3.874         3.841           2.5         8.813         7.60         6.599         6.227         5.988         5.820         5.600         5.523         5.461         5.410         3.94         3.841         3.841         3.841         3.841         3.841         3.841         3.841         3.841         3.841         3.841         3.841         3.841         3.841         3.841         3.841         3.841 <td< th=""><th></th><th>1.0</th><th>16.26</th><th></th><th>12.06</th><th>11.39</th><th>10.97</th><th></th><th>10.46</th><th>10.29</th><th></th><th>10.05</th><th>9.963</th><th>9.888</th><th>9.722</th><th>9.553</th><th>9.466</th><th>9.379</th></td<>		1.0	16.26		12.06	11.39	10.97		10.46	10.29		10.05	9.963	9.888	9.722	9.553	9.466	9.379
25.0         1.621         1.762         1.784         1.787         1.782         1.782         1.779         1.776         1.771         1.769         1.767         1.762         1.757         1.750         1.757         1.757         1.750         1.757         1.750         1.757         1.757         1.750         1.757		0.5	22.78		16.53	15.56	14.94		14.20	13.96		13.62	13.49	13.38	13.15	12.90	12.78	12.66
100         3.776         3.463         3.289         3.181         3.108         3.055         3.014         2.983         2.958         2.937         2.907         2.905         2.871         2.836         2.818           5.0         5.987         5.143         4.757         4.284         4.284         4.207         4.147         4.099         4.060         4.027         4.000         3.938         3.874         3.841           2.5         8.813         7.260         6.599         6.227         5.988         5.820         5.609         5.609         5.601         5.461         5.401         5.409         5.108         3.874         3.841           1.0         13.75         10.92         9.780         9.148         8.746         8.260         5.609	9	25.0	1.621		1.784	1.787	1.785		1.779	1.776		1.771	1.769	1.767	1.762	1.757	1.754	1.751
5.0         5.987         5.143         4.757         4.384         4.204         4.147         4.099         4.060         4.027         4.000         3.938         3.874         3.841           2.5         8.813         7.260         6.599         6.227         5.988         5.820         5.695         5.600         5.523         5.461         5.410         5.366         5.269         5.18         5.117           1.0         13.75         10.92         9.780         9.148         8.746         8.260         8.523         5.461         5.410         5.366         5.269         5.18         7.117         1.0		10.0	3.776		3.289	3.181	3.108		3.014	2.983		2.937	2.920	2.905	2.871	2.836	2.818	2.800
2.5         8.813         7.260         6.599         6.227         5.988         5.820         5.605         5.600         5.523         5.410         5.366         5.269         5.117           1.0         13.75         10.92         9.780         9.148         8.746         8.466         8.260         8.102         7.976         7.874         7.790         7.718         7.559         7.396         7.313           2.5         18.63         14.54         12.92         12.03         11.46         11.07         10.79         1.677         1.691         1.697         1.691         1.697         1.693         1.691		5.0			4.757	4.534	4.387		4.207	4.147		4.060	4.027	4.000	3.938	3.874	3.841	3.808
1.0         13.75         10.92         9.780         9.148         8.746         8.260         8.102         7.976         7.718         7.739         7.559         7.396         7.314           25.0         18.63         14.54         12.92         12.03         11.46         11.07         10.79         10.57         10.39         10.25         10.13         10.03         9.814         9.894         9.474           25.0         1.573         1.701         1.717         1.716         1.711         1.706         1.697         1.693         1.690         1.687         1.687         1.678         1.671         1.677           10.0         3.589         3.257         3.074         2.961         2.883         2.827         2.725         2.703         2.684         2.682         2.635         2.575         2.575         2.703         2.684         2.682         2.595         3.787         3.726         3.677         3.697         3.684         3.787         3.726         3.677         3.693         3.649         4.895         4.899         4.823         4.761         4.709         4.664         4.568         4.467         4.415           1.0         1.2.2         2.285 <td< th=""><th></th><th>2.5</th><th></th><th></th><th>6.599</th><th>6.227</th><th>5.988</th><th></th><th>5.695</th><th>5.600</th><th></th><th>5.461</th><th>5.410</th><th>5.366</th><th>5.269</th><th>5.168</th><th>5.117</th><th>5.065</th></td<>		2.5			6.599	6.227	5.988		5.695	5.600		5.461	5.410	5.366	5.269	5.168	5.117	5.065
0.5         18.53         14.54         12.92         12.03         11.46         11.07         10.79         10.57         10.39         10.25         10.13         10.03         9.814         9.589         9.474           25.0         1.573         1.701         1.711         1.706         1.701         1.697         1.693         1.690         1.687         1.684         1.678         1.671         1.667           10.0         3.589         3.257         3.074         2.961         2.883         2.827         2.752         2.725         2.703         2.684         2.668         2.632         2.595         2.575           2.0         5.591         4.737         4.347         4.120         3.986         3.787         3.677         3.637         3.684         4.769		1.0	13.75	10.92	9.780	9.148	8.746		8.260	8.102		7.874	7.790	7.718	7.559	7.396	7.313	7.229
25.0         1.573         1.701         1.716         1.711         1.706         1.701         1.697         1.693         1.699         1.684         1.684         1.678         1.671         1.697           10.0         3.589         3.257         3.074         2.961         2.883         2.827         2.785         2.752         2.725         2.703         2.684         2.668         2.632         2.595         2.575           5.0         5.591         4.737         4.347         4.120         3.972         3.866         3.787         3.677         3.637         3.603         3.575         3.511         3.495         3.787           2.5         8.073         6.542         5.890         5.523         5.285         5.119         4.995         4.899         4.823         4.761         4.709         4.666         4.568         4.445         4.415         3.445         3.415         3.415         3.415         3.415         3.415         3.415         4.415         4.415         4.415         4.415         4.415         4.415         4.415         4.415         4.415         4.415         4.415         4.416         4.415         4.415         4.416         4.416         4.416		0.5	18.63	14.54	12.92	12.03	11.46		10.79	10.57		10.25	10.13	10.03	9.814	9.589	9.474	9.358
10.0         3.589         3.257         3.074         2.961         2.883         2.827         2.735         2.725         2.735         2.684         2.668         2.632         2.595         2.575           5.0         5.591         4.737         4.347         4.120         3.972         3.866         3.787         3.726         3.677         3.637         3.603         3.575         3.511         3.445         3.410           2.5         8.073         6.542         5.890         5.523         5.285         5.119         4.995         4.899         4.823         4.761         4.709         4.666         4.568         4.417         4.115           1.0         12.25         9.547         8.451         7.890         6.896         6.894         6.719         6.620         6.538         6.469         6.155         6.074           2.5         1.6.4         1.6.4         1.645         1.640         1.635         1.631         1.627         1.624         1.647         1.645         1.645         1.645         1.645         1.645         1.645         1.645         1.645         1.645         1.635         1.631         1.627         1.624         1.647         1.645         1	7	25.0	1.573	1.701	1.717	1.716	1.711	ı	1.701	1.697		1.690	1.687	1.684	1.678	1.671	1.667	1.663
5.0         5.591         4.737         4.347         4.120         3.866         3.787         3.726         3.677         3.637         3.575         3.511         3.445         3.410           2.5         8.073         6.542         5.890         5.523         5.285         5.119         4.995         4.899         4.823         4.761         4.709         4.666         4.568         4.467         4.415           1.0         12.25         9.547         8.451         7.89         6.719         6.719         6.620         6.538         6.469         6.314         6.155         6.074           0.5         16.24         12.40         10.88         10.05         9.522         9.155         8.885         8.678         8.514         8.380         8.270         8.176         7.968         7.754         7.645           25.0         1.538         1.654         1.658         1.645         1.645         1.645         1.635         1.631         1.627         1.627         1.645         1.645         1.645         1.645         1.645         1.645         1.645         1.645         1.645         1.645         1.645         1.645         1.645         1.645         1.645         1.		10.0	3.589	3.257	3.074	2.961	2.883		2.785	2.752		2.703	2.684	2.668	2.632	2.595	2.575	2.555
2.5         8.073         6.542         5.890         5.523         5.285         5.119         4.995         4.893         4.823         4.761         4.709         4.666         4.568         4.415         4.415           1.0         12.25         9.547         8.451         7.847         7.460         7.191         6.993         6.840         6.719         6.620         6.538         6.469         6.314         6.155         6.074           0.5         16.24         12.40         10.88         10.05         9.522         9.155         8.885         8.678         8.514         8.380         8.270         8.176         7.968         7.54         7.645           25.0         1.538         1.657         1.645         1.645         1.640         1.645         1.640         1.635         1.631         1.627         1.624         1.609         1.604           10.0         3.458         3.113         2.924         2.806         2.624         2.589         2.561         2.538         2.519         2.502         2.464         2.425         2.404           5.31         4.459         4.066         3.838         3.687         3.581         3.581         3.284         3.218<		5.0	5.591	4.737	4.347	4.120	3.972		3.787	3.726		3.637	3.603	3.575	3.511	3.445	3.410	3.376
1.0         12.25         9.547         8.451         7.460         7.191         6.993         6.840         6.719         6.620         6.538         6.469         6.314         6.155         6.074           0.5         16.24         12.34         10.88         10.05         9.522         9.155         8.885         8.678         8.514         8.380         8.270         8.176         7.968         7.754         7.645           25.0         1.538         1.657         1.668         1.651         1.645         1.640         1.635         1.631         1.627         1.624         1.617         1.609         1.644         1.645         1.640         1.635         1.631         1.627         1.627         1.647         1.649         1.635         1.631         1.647         1.649         1.635         1.644         1.649         1.637         1.631         1.627         1.624         1.649         1.649         1.649         1.649         1.649         1.644         1.649         1.644         1.644         1.644         1.644         1.644         1.644         1.644         1.649         1.644         1.644         1.644         1.644         1.644         1.644         1.644         1.644		2.5	8.073	6.542	5.890	5.523	5.285		4.995	4.899		4.761	4.709	4.666	4.568	4.467	4.415	4.362
0.5         16.24         12.40         10.88         10.05         9.155         9.155         8.885         8.678         8.514         8.380         8.270         8.176         7.968         7.754         7.645           25.0         1.538         1.654         1.668         1.651         1.645         1.640         1.635         1.631         1.627         1.624         1.609         1.604           10.0         3.458         3.113         2.924         2.806         2.726         2.689         2.561         2.538         2.519         2.502         2.464         2.425         2.404           5.0         5.318         4.459         4.066         3.838         3.687         3.589         3.388         3.347         3.313         3.284         3.150         3.115           2.5         7.571         6.059         5.416         4.652         4.529         4.433         4.357         4.295         4.243         4.206         4.101         3.999         3.947           1.0         11.26         8.649         7.591         7.006         6.632         6.371         6.178         7.496         7.339         7.211         7.104         7.015         6.816         6.808<		1.0	12.25	9.547	8.451	7.847	7.460		6.993	6.840		6.620	6.538	6.469	6.314	6.155	6.074	5.992
25.0       1.538       1.657       1.664       1.658       1.651       1.645       1.640       1.635       1.631       1.627       1.624       1.617       1.609       1.604         10.0       3.458       3.113       2.924       2.806       2.726       2.624       2.589       2.561       2.538       2.519       2.502       2.464       2.425       2.404         5.0       5.318       4.459       4.066       3.838       3.687       3.581       3.500       3.438       3.347       3.313       3.284       3.218       3.115         2.5       7.571       6.059       5.416       5.053       4.817       4.652       4.433       4.357       4.295       4.243       4.200       4.101       3.999       3.947         1.0       11.26       8.649       7.591       7.006       6.632       6.371       6.178       6.029       5.911       5.814       5.734       5.667       5.515       5.359       5.279         0.5       14.69       11.04       9.596       8.805       8.302       7.694       7.496       7.339       7.211       7.115       6.015       6.808       6.503		0.5	16.24		10.88	10.05	9.522		8.885	8.678		8.380	8.270	8.176	7.968	7.754	7.645	7.534
3.4583.1132.9242.8062.7262.6682.6242.5892.5612.5382.5192.5022.4642.4252.4045.3184.4594.0663.8383.6873.5813.5003.4383.3343.3133.2843.2183.1503.1157.5716.0595.4165.0534.8174.6524.5294.4334.3574.2954.2434.2004.1013.9993.94711.268.6497.5917.0066.6326.3716.1786.0295.9115.8145.7345.6675.5155.3595.27914.6911.049.5968.8058.3027.9527.6947.4967.3397.2117.1047.0156.8146.6086.503	∞	25.0	1.538		1.668	1.664	1.658		1.645	1.640		1.631	1.627	1.624	1.617	1.609	1.604	1.600
4.4594.0663.8383.6873.5813.5003.4383.3883.3473.3133.2843.2183.1503.1156.0595.4165.0534.8174.6524.5294.4334.3574.2954.2434.2004.1013.9993.9478.6497.5917.0066.6326.3716.1786.0295.9115.8145.7345.6675.5155.3595.27911.049.5968.8058.3027.9527.6947.4967.3397.2117.1047.0156.8146.6086.503		10.0	3.458		2.924	2.806	2.726	2.668	2.624	2.589		2.538	2.519	2.502	2.464	2.425	2.404	2.383
6.059 5.416 5.053 4.817 4.652 4.529 4.433 4.357 4.295 4.243 4.200 4.101 3.999 3.947 8.649 7.591 7.006 6.632 6.371 6.178 6.029 5.911 5.814 5.734 5.667 5.515 5.359 5.279 11.04 9.596 8.805 8.302 7.952 7.694 7.496 7.339 7.211 7.104 7.015 6.814 6.608 6.503		5.0	5.318		4.066	3.838	3.687	3.581	3.500	3.438		3.347	3.313	3.284	3.218	3.150	3.115	3.079
8.649 7.591 7.006 6.632 6.371 6.178 6.029 5.911 5.814 5.734 5.667 5.515 5.359 5.279 11.04 9.596 8.805 8.302 7.952 7.694 7.496 7.339 7.211 7.104 7.015 6.814 6.608 6.503		2.5	7.571		5.416	5.053	4.817	4.652	4.529	4.433		4.295	4.243	4.200	4.101	3.999	3.947	3.894
11.04 9.596 8.805 8.302 7.952 7.694 7.496 7.339 7.211 7.104 7.015 6.814 6.608 6.503		1.0	11.26	8.649	7.591	7.006	6.632	6.371	6.178	6.029		5.814	5.734	5.667	5.515	5.359	5.279	5.198
		0.5	14.69	11.04	9.596	8.805	8.302	7.952	7.694	7.496		7.211	7.104	7.015	6.814	809.9	6.503	6.396

Tabelle B.8: Quantilen-Tabelle der F-Verteilung

n         q [\$\psi\$]         1         2         3         4         5         6         7         8         9         10         11         12         15         20         24         30           9         25.0         1.512         1.624         1.625         1.617         1.626         1.625         1.617         1.625         1.624         1.625         1.617         1.626         2.83         3.63         3.00         2.813         2.692         2.617         2.255         2.70         2.30         3.60         2.30         2.30         3.60         2.30         3.60         2.30         3.60         2.30         3.60         2.30         3.60         2.30         3.60         2.30         3.60         2.30         3.60         2.30         3.60         2.30         3.60         3.81         3.20<		$F^{lpha}_{n,m}$								ш								
25.0 1.512 1.624 1.632 1.625 1.617 1.609 1.602 1.596 1.591 1.586 1.579 1.570 1.561 1.556 1.000 3.360 3.006 2.813 2.693 2.611 2.551 2.505 2.469 2.440 2.416 2.396 2.379 2.340 2.298 2.277 5.0 3.360 3.006 2.813 2.693 2.611 2.551 2.505 2.469 2.440 2.416 2.396 2.379 2.340 2.298 2.277 5.0 5.117 4.256 3.863 3.633 3.482 3.374 3.293 3.230 3.179 3.137 3.102 3.073 3.006 2.936 2.900 2.5 7.209 5.715 5.078 4.718 4.484 4.320 4.197 4.102 4.056 3.964 3.912 3.868 3.769 3.667 3.614 1.056 1.056 1.051 1.058 1.055 1.257 5.178 5.111 4.052 4.808 4.729 1.00 3.285 2.924 2.728 2.605 2.525 2.461 2.414 2.377 2.347 2.352 2.342 2.244 2.201 2.178 1.00 3.285 2.924 2.728 2.605 2.522 2.461 2.414 2.377 2.347 2.352 2.345 2.545 2.345 3.302 2.345 2.913 2.352 2.345 2.345 3.302 2.345 2.345 2.345 3.355 1.501 2.345 2.345 3.352 2.345 2.345 3.302 2.345 2.345 2.345 3.355 2.345 3.352 2.345 2.3	и		1	2	3	4	5	9	7	∞	6	10	11	12	15	20	24	30
10.0 3.360 3.006 2.813 2.693 2.611 2.551 2.505 2.469 2.440 2.416 2.396 2.379 2.370 2.298 2.277 5.0 5.117 4.256 3.863 3.633 3.482 3.374 3.293 3.230 3.179 3.137 3.102 3.073 3.006 2.936 2.900 2.5 7.209 5.715 5.078 4.718 4.484 4.320 4.197 4.102 4.026 3.964 3.912 3.868 3.769 3.667 3.614 1.0 10.56 8.022 6.992 6.422 6.057 5.802 5.613 5.467 5.351 5.257 5.178 5.111 4.962 4.808 4.729 0.5 13.61 10.11 8.717 7.956 7.471 7.134 6.885 6.693 6.541 6.417 6.314 6.227 6.032 5.832 5.729 2.30 1.491 1.598 1.603 1.555 1.857 1.556 1.557 1.547 1.543 1.534 1.523 1.518 1.0 10.56 3.285 2.924 2.728 2.605 2.522 2.461 2.414 2.377 2.347 2.323 2.302 2.849 2.244 2.201 2.178 2.0 4.965 4.103 3.708 3.478 3.326 3.217 3.135 3.072 3.020 2.978 2.943 2.942 2.244 2.201 2.178 2.50 4.965 4.103 3.708 3.478 3.326 3.217 3.135 3.072 3.020 2.978 2.943 2.942 2.244 2.201 2.178 2.50 6.937 5.456 4.826 4.468 4.236 4.072 3.950 3.855 3.779 3.717 3.665 3.621 3.523 4.403 4.324 2.324 2.349 4.772 4.706 4.558 4.405 4.327 0.5 12.83 9.427 8.081 7.343 6.835 2.342 2.342 2.342 2.3419 3.365 1.537 1.580 1.570 1.560 1.550 1.550 1.542 1.538 1.544 3.942 3.843 3.357 3.244 3.982 2.387 2.349 2.349 2.349 2.357 2.249 2.349 2.349 2.340 2.341 2.340 2.341 2.340 1.480 1.468 1.461 1.560	6	25.0	1.512	1.624	1.6			1.609	1.602	1.596	1.591	1.586	1	1.579	1.570	1.561	1.556	1.551
5.0 5.117 4.256 3.863 3.633 3.482 3.374 3.293 3.230 3.179 3.137 3.102 3.073 3.006 2.936 2.900 2.5 7.209 5.715 5.078 4.718 4.484 4.320 4.197 4.102 4.026 3.964 3.912 3.868 3.769 3.667 3.614 1.0 10.56 8.022 6.992 6.422 6.057 5.802 5.613 5.467 5.351 5.257 5.178 5.111 4.962 4.808 4.729 6.5 13.61 10.11 8.717 7.956 7.471 7.134 6.885 6.693 6.541 6.417 6.314 6.227 6.032 5.832 5.729 2.0 1.491 1.598 1.603 1.595 1.585 1.576 1.569 1.562 1.551 1.547 1.543 1.534 1.523 1.518 1.0 10.3 3.285 2.924 2.728 2.605 2.522 2.461 2.414 2.377 2.347 2.323 2.302 2.284 2.244 2.201 2.178 2.0 4.965 4.103 3.08 3.478 3.326 3.217 3.135 3.072 3.972 3.903 2.943 2.913 2.845 2.774 2.737 2.8 4.965 4.103 3.08 3.478 3.326 3.217 3.135 3.072 3.072 3.978 2.943 2.913 2.845 2.774 2.737 2.8 5.456 4.826 4.468 4.236 4.072 3.950 3.855 3.779 3.717 3.665 3.621 3.522 3.419 3.365 1.0 10.04 7.559 6.552 5.994 5.636 5.386 5.200 5.057 4.942 4.849 4.772 4.706 4.558 4.405 4.327 2.0 2.0 1.0 1.0 4.759 6.552 5.994 5.636 5.386 5.200 5.057 4.942 4.849 4.772 4.706 4.558 4.405 1.403 1.487 1.487 1.577 1.580 1.530 1.530 1.530 1.531 1		10.0		3.006	2.813			2.551	2.505			2.416	2.396		2.340			2.255
2.5 7.209 5.715 5.078 4.718 4.484 4.320 4.197 4.102 4.026 3.964 3.912 3.868 3.769 3.667 3.614 1.0 10.56 8.022 6.992 6.422 6.057 5.802 5.613 5.467 5.351 5.257 5.178 5.111 4.962 4.808 4.729 6.5 13.61 10.11 8.717 7.956 7.471 7.134 6.885 6.693 6.541 6.417 6.314 6.227 6.032 5.832 5.729 2.50 1.491 1.598 1.603 1.595 1.585 1.576 1.569 1.562 1.551 1.547 1.543 1.534 1.523 1.518 1.00 3.285 2.924 2.728 2.605 2.522 2.461 2.414 2.377 2.347 2.323 2.302 2.284 2.244 2.201 2.178 5.0 4.965 4.103 3.708 3.478 3.326 3.217 3.135 3.072 3.020 2.978 2.943 2.913 2.845 2.774 2.737 2.35 5.954 5.456 4.826 4.468 4.236 4.072 3.950 3.855 3.779 3.717 3.665 3.621 3.522 3.419 3.365 1.0 10.04 7.559 6.552 5.994 5.636 5.386 5.200 5.057 4.942 4.849 4.772 4.706 4.558 4.405 4.327 1.0 10.04 7.559 6.552 5.994 5.636 5.386 5.200 5.057 4.942 4.849 4.772 4.706 4.558 4.405 4.327 1.0 10.04 7.559 6.552 5.994 5.636 5.386 5.302 6.116 5.968 5.847 5.746 5.661 5.471 5.274 5.173 1.0 10.04 7.559 6.552 5.994 5.636 5.386 5.302 6.116 5.968 5.847 5.746 5.661 5.471 5.274 5.173 1.0 10.04 7.559 6.552 5.994 5.636 5.386 5.302 6.116 5.968 5.847 5.746 5.661 5.471 5.274 5.173 1.0 10.0 4.844 3.982 3.587 3.357 3.204 3.095 3.012 2.948 2.896 2.854 2.818 2.788 2.719 2.646 2.609 5.0 4.844 3.982 3.587 3.357 3.204 3.095 3.012 2.948 2.896 2.854 2.818 2.788 2.719 2.646 2.609 2.56 6.724 5.266 6.217 5.668 5.316 5.069 4.886 4.744 4.632 4.539 4.462 4.397 4.251 4.099 4.021 1.0 1.0 4.471 3.885 3.490 3.259 1.529 1.520 1.512 1.505 1.505 1.407 2.105 2.060 2.366 5.049 4.885 4.744 4.632 4.539 4.462 4.397 4.251 4.509 4.021 1.0 1.0 1.560 1.561 1.550 1.539 1.529 1.520 1.512 1.505 1.505 1.477 2.105 2.060 2.366 5.049 4.855 4.756 5.049 4.855 3.759 2.142 2.188 2.172 2.687 2.697 2.996 2.913 2.849 2.796 2.753 2.717 2.687 2.017 2.544 2.530 4.731 3.301 3.277 3.377 3.177 3.073 3.019 1.0 9.330 6.227 6.521 6.071 5.757 5.525 5.345 5.202 5.085 4.988 4.906 4.721 4.530 4.331 3.277 3.173 3.019 3.175 8.510 7.226 6.521 6.071 5.757 5.525 5.345 5.202 5.085 4.988 4.906 4.721 1.350 1.224 6.721 6.721 5.202 5.345 5.202 5.085 4		5.0	5.117	4.256	3.863				3.293	3.230	3.179	3.137	3.102	3.073	3.006			2.864
1.0   10.56   8.022   6.992   6.422   6.057   5.802   5.613   5.457   5.178   5.111   4.962   4.808   4.729   0.5   13.61   10.11   8.717   7.956   7.471   7.134   6.885   6.693   6.541   6.417   6.314   6.227   6.032   5.832   5.729   25.0   1.491   1.598   1.603   1.595   1.5751   1.576   1.520   1.556   1.551   1.547   1.543   1.534   1.523   1.518   10.0   3.285   2.924   2.728   2.605   2.522   2.461   2.414   2.377   2.347   2.323   2.302   2.284   2.244   2.201   2.178   2.95   4.965   4.103   3.708   3.478   3.326   3.217   3.135   3.072   3.020   2.978   2.943   2.913   2.845   2.774   2.737   2.556   1.537   2.456   2.488   4.236   4.072   3.950   3.855   3.779   3.717   3.665   3.621   3.522   3.419   3.365   1.004   7.559   6.552   5.994   5.636   5.386   5.200   5.057   4.942   4.849   4.772   4.706   4.558   4.405   4.327   4.349   4.772   4.706   4.558   4.405   4.327   4.847   4.349   4.772   4.706   4.558   4.405   4.327   4.847   4.349   4.727   4.724   4.237   4.244   3.982   3.585   2.451   2.389   2.342   2.349   2.247   2.248   2.247   2.100   2.948   2.860   2.660   2.536   2.451   2.389   2.342   2.349   2.242   2.248   2.245   2.217   2.090   2.167   2.143   4.444   3.982   3.587   3.357   3.204   3.095   3.012   2.948   2.895   2.854   2.881   3.759   3.644   3.883   3.526   3.444   3.430   3.330   3.265   3.173   4.444   3.982   3.587   3.315   5.069   4.886   4.744   4.632   4.539   4.462   4.397   4.251   4.099   4.021   4.001   3.888   3.780   3.370   3.211   2.544   2.505   5.544   5.005   5.00		2.5	7.209	5.715	5.078				4.197	4.102	4.026		3.912	3.868	3.769		3.614	3.560
0.5   13.61   10.11   8.717 7.956 7.471 7.134 6.885 6.693 6.541 6.417 6.314 6.227 6.032 5.832 5.729   25.0   1.491   1.598 1.603 1.595 1.585 1.576 1.569 1.562 1.556 1.551 1.547 1.543 1.534 1.523 1.518   10.0   3.285   2.924 2.728   2.605 2.522 2.461 2.414 2.377 2.347 2.323 2.302 2.284 2.244 2.201 2.178   2.0   4.965   4.103 3.708 3.478 3.326 3.217 3.135 3.072 3.020 2.978 2.943 2.913 2.845 2.774 2.737   2.2   6.937   5.456 4.826 4.468 4.236 4.072 3.950 3.855 3.779 3.717 3.665 3.621 3.522 3.419 3.365   1.0   10.04   7.559 6.552 5.994 5.636 5.386 5.200 5.057 4.942 4.849 4.772 4.706 4.558 4.405 4.327   2.5   12.83   9.427 8.081 7.343 6.872 6.545 6.302 6.116 5.968 5.847 5.746 5.661 5.471 5.274 5.173   2.5   12.83   9.427 8.081 7.343 6.872 6.545 6.302 6.116 5.968 5.847 5.746 5.661 5.471 5.274 5.173   2.5   1.475   1.577 1.580 1.570 1.560 1.550 1.550 1.542 1.535 1.528 1.521 1.518 1.514 1.504 1.493 1.487   2.5   4.844   3.982 3.587 3.537 3.204 3.095 3.012 2.948 2.896 2.884 2.882 2.779 2.746 2.609 4.021   2.5   4.844   3.982 3.587 3.537 3.204 3.095 3.012 2.948 2.896 2.854 2.818 2.788 2.719 2.646 2.609   2.5   4.747   3.882 3.490 3.259 1.529 1.520 1.501 1.505 1.501 1.405 1.490 1.480 1.468 1.461   2.5   1.461   1.560 1.561 1.550 1.529 1.520 1.512 1.505 1.501 1.495 1.490 1.480 1.468 1.461   2.8   4.747   3.885 3.490 3.259 3.106 2.996 2.913 2.849 2.796 2.753 2.717 2.687 2.617 2.544 2.505   2.5   6.554   5.096 4.474 4.121 3.891 3.728 3.245 5.202 5.085 4.988 4.906 4.753 0.443 3.019   2.5   6.554   5.096 4.474 4.121 3.891 3.728 3.545 5.202 5.085 4.988 4.906 4.7530 4.431 3.019   2.5   6.554   5.096 4.474 4.121 3.891 3.728 5.202 5.085 4.988 4.906 4.7530 4.431 3.019   2.5   6.554   5.096 4.474 4.121 3.891 3.728 5.202 5.025 5.035 5.045 4.838 3.780   2.5   6.554   5.096 4.474 4.121 3.891 3.728 5.202 5.025 5.025 5.035 5.045 4.831 3.019 3.019 3.019 3.010 3.835 5.045 5.055 5.		1.0	10.56	8.022	6.9			5.802	5.613		5.351	5.257	5.178	5.111	4.962	4.808		4.649
25.0         1.491         1.598         1.603         1.585         1.576         1.569         1.556         1.556         1.575         1.551         1.547         1.543         1.534         1.523         1.518           10.0         3.285         2.924         2.728         2.605         2.522         2.441         2.377         2.347         2.347         2.347         2.347         2.347         2.342         2.943         2.913         2.845         2.201         2.173           2.5         6.937         5.456         4.826         4.072         3.950         3.855         3.779         3.717         3.665         3.621         3.522         3.419         3.365           2.5         6.937         5.456         4.826         4.072         3.950         3.855         3.779         3.717         3.664         3.584         4.374         2.741         2.747         2.747         2.747         2.747         2.747         2.74         2.756         6.525         5.994         5.636         5.386         5.200         5.057         4.942         4.849         4.772         4.706         4.558         4.747         2.746         5.661         5.471         5.749         2.747		0.5	13.61	10.11	_			7.134	6.885	6.693	6.541	6.417	6.314	6.227	6.032			5.625
10.0 3.285 2.924 2.728 2.605 2.522 2.461 2.414 2.377 2.347 2.332 2.302 2.284 2.244 2.201 2.178 5.0 4.965 4.103 3.708 3.478 3.326 3.217 3.135 3.072 3.020 2.978 2.943 2.913 2.845 2.774 2.737 2.5 6.937 5.456 4.826 4.468 4.236 4.072 3.950 3.855 3.779 3.717 3.665 3.621 3.522 3.419 3.365 1.0 10.04 7.559 6.552 5.994 5.636 5.386 5.200 5.057 4.942 4.849 4.772 4.706 4.558 4.405 4.327 0.5 12.83 9.427 8.081 7.343 6.872 6.320 6.116 5.968 5.847 5.746 5.661 5.471 5.274 5.173 2.50 1.475 1.577 1.580 1.570 1.560 1.550 1.542 1.535 1.528 1.523 1.518 1.514 1.504 1.493 1.487 1.00 3.225 2.860 2.660 2.536 2.451 2.389 2.342 2.304 2.274 2.248 2.227 2.209 2.167 2.123 2.100 2.06 2.536 2.451 2.389 2.342 2.304 2.274 2.248 2.227 2.209 2.167 2.123 2.100 2.06 2.536 3.357 3.204 3.095 3.012 2.948 2.896 2.854 2.818 2.788 2.719 2.646 2.609 2.06 6.217 5.668 5.316 5.069 4.886 4.744 4.632 4.539 4.462 4.397 4.251 4.099 4.021 0.5 12.23 8.912 7.600 6.881 6.422 6.102 5.865 5.537 5.418 5.320 5.236 5.049 4.855 4.756 1.20 1.560 1.550 1.550 1.520 1.512 1.505 1.500 1.495 1.480 1.488 1.461 1.560 1.560 2.480 2.394 2.331 2.283 2.245 2.214 2.188 2.166 2.147 2.105 2.060 2.036 2.913 2.849 2.796 2.733 2.717 2.887 3.743 3.321 3.273 3.713 3.019 1.00 9.340 4.321 3.243 3.374 3.321 3.277 3.717 3.073 3.019 1.00 9.330 6.927 5.953 5.412 5.064 4.821 4.640 4.499 4.388 4.296 4.220 4.155 4.010 3.858 3.780 0.5 11.75 8.510 7.226 6.521 6.071 5.757 5.525 5.345 5.202 5.085 4.988 4.906 4.721 4.530 4.431	10	25.0	1.491	1.598	1.6			1		1.562	1.556	1.551	1.547	1.543	1.534	1.523	1.518	1.512
5.0 4.965 4.103 3.708 3.478 3.326 3.217 3.135 3.072 3.020 2.978 2.943 2.913 2.845 2.774 2.737 2.5 6.937 5.456 4.826 4.468 4.236 4.072 3.950 3.855 3.779 3.717 3.665 3.621 3.522 3.419 3.365 1.0 0.04 7.559 6.552 5.994 5.636 5.200 5.057 4.942 4.849 4.772 4.706 4.558 4.405 4.327 0.5 12.83 9.427 8.081 7.343 6.872 6.536 5.306 5.165 9.884 5.746 5.661 5.471 5.274 5.173 2.50 12.83 9.427 1.580 1.570 1.560 1.550 1.542 1.535 1.523 1.518 1.514 1.504 1.493 1.487 1.0 3.225 2.860 2.660 2.536 2.451 2.389 2.342 2.304 2.774 2.248 2.227 2.209 2.167 2.123 2.100 2.25 6.724 5.256 4.630 4.275 4.044 3.881 3.759 3.664 3.588 3.526 3.474 3.430 3.330 3.226 3.173 1.0 9.646 7.206 6.217 5.668 5.316 5.069 4.886 4.744 4.632 4.539 4.462 4.397 4.251 4.099 4.021 0.5 12.23 8.912 7.600 6.881 6.422 6.102 5.865 5.682 5.537 5.418 5.320 5.236 5.049 4.855 4.756 1.201 1.560 1.561 1.550 1.539 1.529 1.520 1.512 1.505 1.500 1.495 1.490 1.480 1.468 1.461 1.560 1.561 1.550 1.591 1.523 1.223 2.445 2.455 2.244 2.565 2.480 2.394 2.331 2.283 2.245 2.214 2.188 2.166 2.147 2.105 2.060 2.036 5.049 4.874 4.121 3.891 3.728 3.607 3.512 3.436 3.374 3.321 3.277 3.177 3.073 3.019 1.0 9.330 6.927 5.953 5.412 5.054 4.821 4.640 4.499 4.388 4.296 4.220 4.155 4.010 3.858 3.780 0.5 11.75 8.510 7.226 6.521 6.071 5.757 5.525 5.345 5.202 5.085 4.988 4.906 4.721 4.530 4.431		10.0		2.924	2.728				2.414	2.377	2.347	2.323		2.284	2.244		2.178	2.155
2.5         6.937         5.456         4.826         4.468         4.236         4.072         3.955         3.779         3.717         3.665         3.621         3.522         3.419         3.365           1.0         10.04         7.559         6.552         5.994         5.636         5.200         5.057         4.942         4.849         4.772         4.706         4.558         4.405         4.377           0.5         12.83         9.427         8.081         7.343         6.872         6.545         6.302         6.116         5.968         5.847         5.746         5.661         5.471         5.74         5.77         5.74         5.77         5.74		5.0		4.103					3.135			2.978		2.913	2.845			2.700
1.0   10.04   7.559   6.552   5.994   5.636   5.386   5.200   5.057   4.942   4.772   4.706   4.558   4.405   4.327   5.774   5.015   1.283   9.427   8.081   7.343   6.872   6.545   6.302   6.116   5.968   5.847   5.746   5.661   5.471   5.744   5.173   1.580   1.577   1.580   1.570   1.560   1.550   1.542   1.535   1.528   1.523   1.518   1.514   1.504   1.493   1.487   1.00   3.225   2.860   2.660   2.536   2.451   2.389   2.342   2.374   2.274   2.248   2.227   2.209   2.167   2.123   2.100   2.256   4.844   3.982   3.357   3.204   3.095   3.012   2.948   2.896   2.854   2.818   2.788   2.719   2.646   2.609   2.56   4.630   4.275   4.044   3.881   3.759   3.664   3.588   3.526   3.474   3.430   3.330   3.226   3.173   3.056   2.066   2.275   2.069   4.886   4.744   4.632   4.539   4.462   4.397   4.251   4.099   4.021   4.051   4.		2.5		5.456	4.826				3.950		3.779	3.717		3.621	3.522			3.311
0.5         12.83         9.427         8.081         7.343         6.845         6.302         6.116         5.968         5.847         5.746         5.661         5.711         5.274         5.173           25.0         1.475         1.577         1.580         1.570         1.560         1.550         1.542         1.535         1.523         1.518         1.514         1.504         1.493         1.487           10.0         3.225         2.860         2.660         2.536         2.451         2.389         2.342         2.304         2.274         2.248         2.227         2.209         2.167         2.123         2.100           5.0         4.844         3.982         3.587         3.204         3.095         3.012         2.948         2.896         2.864         2.889         2.874         3.49         2.167         2.103         2.103         2.103         2.103         2.103         2.104         3.88         3.104         3.095         3.012         2.948         2.896         2.864         3.888         3.526         3.474         3.49         3.30         3.224         2.18         2.30         4.462         4.79         4.744         4.632         4.58         4.		1.0		7.559	6.552					5.057	4.942	4.849		4.706	4.558			4.247
25.0 1.475 1.577 1.580 1.570 1.560 1.551 1.535 1.528 1.523 1.518 1.514 1.504 1.493 1.487 10.0 3.225 2.860 2.660 2.536 2.451 2.389 2.342 2.304 2.274 2.248 2.227 2.209 2.167 2.123 2.100 2.94 3.982 3.587 3.357 3.204 3.095 3.012 2.948 2.896 2.854 2.818 2.788 2.719 2.646 2.609 2.56 4.630 4.275 4.044 3.881 3.759 3.664 3.588 3.526 3.474 3.430 3.320 3.226 3.173 1.0 9.646 7.206 6.217 5.668 5.316 5.069 4.886 4.744 4.632 4.539 4.462 4.397 4.251 4.099 4.021 0.5 12.23 8.912 7.600 6.881 6.422 6.102 5.865 5.682 5.537 5.418 5.320 5.236 5.049 4.855 4.756 1.461 1.560 1.561 1.550 1.591 1.520 1.512 1.505 1.501 1.495 1.490 1.480 1.488 1.461 1.500 3.177 2.807 2.606 2.394 2.331 2.283 2.245 2.714 2.188 2.166 2.147 2.105 2.060 2.036 2.447 3.885 3.490 3.259 3.106 2.996 2.913 2.849 2.796 2.753 2.717 2.687 2.617 2.544 2.505 2.05 6.554 5.096 4.474 4.121 3.891 3.728 3.607 3.512 3.436 3.374 3.321 3.277 3.177 3.073 3.019 0.330 6.927 5.953 5.412 5.064 4.821 4.640 4.499 4.388 4.296 4.220 4.155 4.010 3.858 3.780 0.5 11.75 8.510 7.226 6.521 6.071 5.757 5.525 5.345 5.202 5.085 4.988 4.906 4.721 4.530 4.431		0.5		9.427	8.0	7.343					5.968	5.847	5.746		5.471	5.274		5.071
10.0 3.225 2.860 2.660 2.536 2.451 2.389 2.342 2.304 2.274 2.248 2.227 2.209 2.167 2.123 2.100 2.94 3.982 3.587 3.357 3.204 3.095 3.012 2.948 2.896 2.854 2.818 2.788 2.719 2.646 2.609 2.5 6.724 5.256 4.630 4.275 4.044 3.881 3.759 3.664 3.588 3.526 3.474 3.430 3.330 3.226 3.173 1.0 9.646 7.206 6.217 5.668 5.316 5.069 4.886 4.744 4.632 4.539 4.462 4.397 4.251 4.099 4.021 0.5 12.23 8.912 7.600 6.881 6.422 6.102 5.865 5.682 5.537 5.418 5.320 5.236 5.049 4.855 4.756 1.50 1.560 1.560 1.550 1.539 1.529 1.520 1.512 1.505 1.500 1.495 1.490 1.480 1.468 1.461 1.00 3.177 2.807 2.606 2.480 2.394 2.331 2.283 2.245 2.714 2.188 2.166 2.147 2.105 2.060 2.036 5.04 4.744 4.121 3.891 3.728 3.607 3.512 3.436 3.374 3.321 3.277 3.177 3.073 3.019 1.0 9.330 6.927 5.953 5.412 5.064 4.821 4.640 4.499 4.388 4.296 4.220 4.155 4.010 3.858 3.780 0.5 11.75 8.510 7.226 6.521 6.071 5.757 5.525 5.345 5.202 5.085 4.988 4.906 4.721 4.530 4.431	11	25.0	1.475	1.577	1.580			1.550	1.542	1.535		1.523		1.514	1.504	1.493		1.481
5.0 4.844 3.982 3.587 3.327 3.204 3.095 3.012 2.948 2.896 2.854 2.818 2.788 2.719 2.646 2.609 2.62 6.724 5.256 4.630 4.275 4.044 3.881 3.759 3.664 3.588 3.526 3.474 3.430 3.330 3.226 3.173 1.0 9.646 7.206 6.217 5.668 5.316 5.069 4.886 4.744 4.632 4.539 4.462 4.397 4.251 4.099 4.021 0.5 12.23 8.912 7.600 6.881 6.422 6.102 5.865 5.682 5.537 5.418 5.320 5.236 5.049 4.855 4.756 1.250 1.461 1.560 1.561 1.550 1.539 1.529 1.520 1.512 1.505 1.500 1.495 1.490 1.480 1.486 1.461 1.0 0.3 1.77 2.807 2.606 2.480 2.394 2.331 2.283 2.245 2.214 2.188 2.166 2.147 2.105 2.000 2.036 2.047 3.885 3.490 3.259 3.106 2.996 2.913 2.849 2.796 2.753 2.717 2.687 2.617 2.544 2.505 2.5 6.554 5.096 4.474 4.121 3.891 3.728 3.607 3.512 3.436 3.374 3.321 3.277 3.177 3.073 3.019 1.0 9.330 6.927 5.953 5.412 5.064 4.821 4.640 4.499 4.388 4.296 4.220 4.155 4.010 3.858 3.780 0.5 11.75 8.510 7.226 6.521 6.071 5.757 5.525 5.345 5.202 5.085 4.988 4.906 4.721 4.530 4.431		10.0		2.860	2.660			2.389		2.304				2.209	2.167			2.076
2.5 6.724 5.256 4.630 4.275 4.044 3.881 3.759 3.664 3.588 3.526 3.474 3.430 3.330 3.226 3.173 1.0 9.646 7.206 6.217 5.668 5.316 5.069 4.886 4.744 4.632 4.539 4.462 4.397 4.251 4.099 4.021 0.5 12.23 8.912 7.600 6.881 6.422 6.102 5.865 5.682 5.537 5.418 5.320 5.236 5.049 4.855 4.756 1.20 1.461 1.560 1.561 1.550 1.539 1.529 1.520 1.512 1.505 1.500 1.495 1.490 1.480 1.488 1.461 1.0 3.177 2.807 2.606 2.480 2.394 2.331 2.283 2.245 2.214 2.188 2.166 2.147 2.105 2.060 2.036 5.0 4.747 3.885 3.490 3.259 3.106 2.996 2.913 2.849 2.796 2.753 2.717 2.687 2.617 2.544 2.505 2.5 6.554 5.096 4.474 4.121 3.891 3.728 3.607 3.512 3.436 3.374 3.321 3.277 3.177 3.073 3.019 1.0 9.330 6.927 5.953 5.412 5.064 4.821 4.640 4.499 4.388 4.296 4.220 4.155 4.010 3.858 3.780 0.5 11.75 8.510 7.226 6.521 6.071 5.757 5.525 5.345 5.202 5.085 4.988 4.906 4.721 4.530 4.431		5.0		3.982	3.587					2.948				2.788	2.719			2.570
1.0 9.646 7.206 6.217 5.668 5.316 5.069 4.886 4.744 4.632 4.539 4.462 4.397 4.251 4.099 4.021 0.5 12.23 8.912 7.600 6.881 6.422 6.102 5.865 5.682 5.537 5.418 5.320 5.236 5.049 4.855 4.756 2.5.0 1.461 1.560 1.561 1.550 1.539 1.529 1.520 1.512 1.505 1.500 1.495 1.490 1.480 1.468 1.461 10.0 3.177 2.807 2.606 2.480 2.394 2.331 2.283 2.245 2.214 2.188 2.166 2.147 2.105 2.060 2.036 2.047 3.885 3.490 3.259 3.106 2.996 2.913 2.849 2.796 2.753 2.717 2.687 2.617 2.544 2.505 2.5 6.554 5.096 4.474 4.121 3.891 3.728 3.607 3.512 3.436 3.374 3.321 3.277 3.177 3.073 3.019 1.0 9.330 6.927 5.953 5.412 5.064 4.821 4.640 4.499 4.388 4.296 4.220 4.155 4.010 3.858 3.780 0.5 11.75 8.510 7.226 6.521 6.071 5.757 5.525 5.345 5.202 5.085 4.988 4.906 4.721 4.530 4.431		2.5		5.256	4.630				3.759	3.664		3.526	3.474	3.430	3.330		3.173	3.118
0.5   12.23   8.912   7.600   6.881   6.422   6.102   5.865   5.682   5.537   5.418   5.320   5.236   5.049   4.855   4.756   4.611   4.611   4.611   4.611   4.811		1.0		7.206	6.217				4.886	4.744		4.539		4.397	4.251	4.099	4.021	3.941
25.0 1.461 1.560 1.561 1.550 1.539 1.529 1.520 1.512 1.505 1.500 1.495 1.490 1.480 1.468 1.461 10.0 3.177 2.807 2.606 2.480 2.394 2.331 2.283 2.245 2.214 2.188 2.166 2.147 2.105 2.060 2.036 5.0 4.747 3.885 3.490 3.259 3.106 2.996 2.913 2.849 2.796 2.753 2.717 2.687 2.617 2.544 2.505 2.5 6.554 5.096 4.474 4.121 3.891 3.728 3.607 3.512 3.436 3.374 3.321 3.277 3.177 3.073 3.019 1.0 9.330 6.927 5.953 5.412 5.064 4.821 4.640 4.499 4.388 4.296 4.220 4.155 4.010 3.858 3.780 0.5 11.75 8.510 7.226 6.521 6.071 5.757 5.525 5.345 5.202 5.085 4.988 4.906 4.721 4.530 4.431		0.5		8.912	7.6				5.865	5.682	5.537	5.418	5.320	5.236	5.049		4.756	4.654
3.177 2.807 2.606 2.480 2.394 2.331 2.283 2.245 2.214 2.188 2.166 2.147 2.105 2.060 2.036 4.747 3.885 3.490 3.259 3.106 2.996 2.913 2.849 2.796 2.753 2.717 2.687 2.617 2.544 2.505 6.554 5.096 4.474 4.121 3.891 3.728 3.607 3.512 3.436 3.374 3.321 3.277 3.177 3.073 3.019 9.330 6.927 5.953 5.412 5.064 4.821 4.640 4.499 4.388 4.296 4.220 4.155 4.010 3.858 3.780 11.75 8.510 7.226 6.521 6.071 5.757 5.525 5.345 5.202 5.085 4.988 4.906 4.721 4.530 4.431	12	25.0		1.560	1.561	1.550		l .	1.520	ı	1.505	1.500			1.480		ı	1.454
4.747       3.885       3.490       3.259       3.106       2.996       2.913       2.849       2.796       2.753       2.717       2.687       2.617       2.544       2.505         6.554       5.096       4.474       4.121       3.891       3.728       3.607       3.512       3.436       3.374       3.321       3.177       3.013         9.330       6.927       5.953       5.412       5.064       4.821       4.640       4.499       4.388       4.296       4.220       4.155       4.010       3.858       3.780         11.75       8.510       7.226       6.521       6.071       5.757       5.525       5.345       5.202       5.085       4.988       4.906       4.721       4.530       4.431		10.0		2.807	2.606				2.283			2.188			2.105			2.011
6.554 5.096 4.474 4.121 3.891 3.728 3.607 3.512 3.436 3.374 3.321 3.277 3.177 3.073 3.019 9.330 6.927 5.953 5.412 5.064 4.821 4.640 4.499 4.388 4.296 4.220 4.155 4.010 3.858 3.780 11.75 8.510 7.226 6.521 6.071 5.757 5.525 5.345 5.202 5.085 4.988 4.906 4.721 4.530 4.431		5.0		3.885	3.490					2.849				2.687	2.617	2.544		2.466
9.330 6.927 5.953 5.412 5.064 4.821 4.640 4.499 4.388 4.296 4.220 4.155 4.010 3.858 3.780 11.75 8.510 7.226 6.521 6.071 5.757 5.525 5.345 5.202 5.085 4.988 4.906 4.721 4.530 4.431		2.5	6.554	5.096				3.728	3.607	3.512	3.436			3.277	3.177	3.073		2.963
11.75 8.510 7.226 6.521 6.071 5.757 5.525 5.345 5.202 5.085 4.988 4.906 4.721 4.530 4.431		1.0	9.330	6.927	5.953				4.640	4.499					4.010			3.701
		0.5	11.75	8.510	7.2			5.757	5.525		5.202				4.721	4.530	4	4.331

Tabelle B.9: Quantilen-Tabelle der F-Verteilung

n         q [56]         1         2         3         4         5         6         7         8         9         10         11         15         20         24         30           13         25.0         1.450         1.54         1.551         1.511         1.501         1.480         1.475         1.470         1.491         1.440         1.432           10.0         3.136         2.763         2.560         2.434         2.347         2.283         2.146         2.138         2.116         2.097         2.087         1.983         1.983         1.983         1.99         2.09         2.007         1.983         1.983         1.99         2.04         4.69         3.00         2.097         2.097         2.083         2.83         3.10         2.094         2.480         2.89         3.00         3.00         2.99         2.89         3.86         3.89         3.10         2.00         3.00         3.00         3.00         3.00         3.00         4.44         4.00         4.00         4.00         4.00         3.00         2.48         3.249         2.40         4.40         4.10         4.00         4.00         3.00         3.00         3.00	,	$F_{n,m}^{\alpha}$								ш								
25.0 1.450 1.545 1.545 1.534 1.521 1.511 1.501 1.493 1.486 1.480 1.475 1.470 1.459 1.447 1.440 1.00 3.136 2.763 2.560 2.434 2.347 2.283 2.234 2.195 2.164 2.138 2.116 2.097 2.053 2.007 1.983 5.0 4.667 3.806 3.411 3.179 3.025 2.915 2.832 2.767 2.714 2.671 2.635 2.604 2.533 2.459 2.420 2.56 6.414 4.965 4.347 3.996 3.767 3.604 3.483 3.388 3.312 3.250 3.197 3.153 3.053 2.948 2.893 1.0 9.074 6.701 5.739 5.205 4.862 4.620 4.441 4.302 4.191 4.100 4.025 3.960 3.815 3.665 3.587 1.0 9.074 6.701 5.739 5.205 4.862 4.620 4.441 4.302 4.191 4.100 4.025 3.960 3.815 3.665 3.587 1.00 3.102 2.726 2.535 2.395 2.307 2.434 2.149 2.145 1.445 1.445 1.445 1.445 1.428 1.421 1.428 1.428 1.421 1.428 1.428 1.421 1.428 1.428 1.421 1.428 1.428 1.421 1.428 1.438 1.441 1.448 1.44	и	$\alpha$ [%]	1	2	3	4	5	9	7	∞	6	10	11	12	15	20	24	30
10.0 3.136 2.763 2.560 2.434 2.347 2.283 2.234 2.195 2.164 2.138 2.116 2.097 2.053 2.007 1.983 5.0 4.667 3.806 3.411 3.179 3.025 2.915 2.832 2.767 2.714 2.671 2.635 2.604 2.533 2.459 2.420 2.5 6.414 4.965 4.347 3.996 3.767 3.604 3.483 3.388 3.312 3.250 3.197 3.153 3.053 2.948 2.893 1.0 9.074 6.701 5.739 5.205 4.862 4.620 4.441 4.302 4.191 4.100 4.025 3.960 3.815 3.665 3.587 0.5 11.37 8.186 6.926 6.233 5.791 5.482 5.253 5.076 4.935 4.820 4.724 4.643 4.460 4.270 4.173 2.50 1.440 1.533 1.532 1.519 1.507 1.495 1.487 1.470 1.463 1.458 1.453 1.411 1.428 1.421 1.00 3.102 2.726 2.532 2.395 2.307 2.243 2.193 2.154 2.122 2.095 2.073 2.054 2.010 1.962 1.938 2.007 3.102 2.726 2.532 2.395 2.307 2.243 2.193 2.154 2.122 2.095 2.073 2.054 2.010 1.962 1.938 2.007 3.102 2.726 2.535 3.504 3.328 3.328 3.349 3.12 2.988 2.486 4.264 2.699 2.646 2.602 2.565 2.534 2.463 2.388 2.349 1.0 8.862 6.515 5.564 5.055 2.003 3.043 3.284 2.789 1.0 8.862 6.515 5.564 5.055 2.003 2.043 2.039 3.864 3.800 3.656 3.503 3.427 0.5 11.06 7.922 6.680 5.998 5.562 5.257 5.031 4.857 4.717 4.603 4.508 4.288 4.287 4.059 3.961 2.00 3.073 2.695 2.490 2.361 2.273 2.208 2.142 1.499 1.443 1.438 1.426 1.449 1.443 1.438 1.426 1.413 1.405 1.899 3.060 3.088 2.963 3.060 3.088 2.963 2.382 2.388 2.389 2.389 2.389 3.349 3.558 2.544 2.507 2.475 2.403 2.332 2.328 2.389 2.399 3.869 3.508 2.963 2.322 2.375 2	13	25.0	1.450	1	1.54			1.511	1.501	1.493	1.486	1.480	1.475	1	1.459	1.447	1.440	1.432
5.0 4,667 3,806 3,411 3,179 3,025 2,915 2,832 2,767 2,714 2,671 2,635 2,604 2,533 2,459 2,420 2,51 6,414 4,965 4,347 3,996 3,767 3,604 3,483 3,388 3,312 3,250 3,197 3,153 3,053 2,948 2,893 1.0 9,074 6,701 5,739 5,205 4,862 4,441 4,302 4,191 4,100 4,025 3,960 3,815 3,665 3,587 0.5 11,37 8,186 6,926 6,233 5,791 5,482 5,253 5,076 4,935 4,820 4,724 4,643 4,460 4,270 4,173 2,50 1,440 1,533 1,532 1,519 1,507 1,495 1,487 1,470 1,463 1,458 1,453 1,441 1,428 1,421 1,00 3,102 2,726 2,522 2,395 2,307 2,243 2,193 2,154 2,122 2,095 2,073 2,054 2,010 1,962 1,938 2,00 3,102 2,726 2,522 2,395 2,307 2,243 2,193 2,154 2,122 2,095 2,073 2,054 2,010 1,962 1,938 2,00 3,102 2,726 2,522 2,395 2,307 2,243 2,193 2,154 2,122 2,095 2,073 2,054 2,010 1,962 1,938 2,00 3,103 3,343 3,112 2,958 2,848 2,764 2,699 2,646 2,602 2,565 2,534 2,463 2,388 2,349 1,0 8,862 6,515 5,564 5,035 4,564 4,578 4,140 4,030 3,939 3,864 3,800 3,656 3,505 3,427 0,5 11,06 7,922 6,808 5,998 5,562 5,257 5,031 4,857 4,717 4,603 4,508 4,428 4,247 4,059 3,961 2,00 3,073 2,695 2,490 2,361 2,792 2,182 2,119 2,086 2,032 2,037 2,017 1,972 1,899 3,00 3,032 2,695 2,490 2,361 2,792 2,192 2,192 2,192 2,037 2,017 1,972 1,403 1,493 1,493 1,491 3,694 2,492 2,492 2,494 2,492		10.0	3.136	2.763	2.560			2.283		2.195	2.164	2.138			2.053		1.983	1.958
2.5 (5.414, 4.965, 4.347, 3.996, 3.767, 3.604, 3.483, 3.382, 3.312, 3.250, 3.197, 3.153, 3.053, 2.948, 2.893, 1.0 (9.074, 6.701, 5.739, 5.205, 4.862, 4.620, 4.441, 4.302, 4.191, 4.100, 4.025, 3.960, 3.815, 3.665, 3.587, 0.5 (11.37), 8.186, 6.926, 6.233, 5.791, 5.482, 5.253, 5.076, 4.935, 4.820, 4.724, 4.643, 4.460, 4.270, 4.173, 2.501, 1.401, 1.533, 1.532, 1.519, 1.507, 1.495, 1.485, 1.477, 1.470, 1.463, 1.458, 1.453, 1.441, 1.428, 1.421, 1.401, 1.601, 1.602, 2.726, 2.535, 2.395, 2.307, 2.243, 2.193, 2.154, 2.122, 2.095, 2.073, 2.054, 2.010, 1.962, 1.938, 5.0 (4.600, 3.739, 3.344, 3.112, 2.958, 2.848, 2.764, 2.699, 2.646, 2.602, 2.565, 2.534, 2.463, 2.388, 2.349, 2.25, 2.298, 4.857, 4.242, 3.892, 3.663, 3.501, 3.380, 3.285, 3.209, 3.147, 3.095, 3.050, 2.949, 2.844, 2.789, 1.0 (6.476, 4.857, 4.242, 3.892, 3.663, 3.501, 3.380, 3.285, 3.209, 3.147, 3.095, 3.050, 2.949, 2.844, 2.789, 2.841, 2.789, 2.842, 2.242, 2.242, 2.242, 2.243, 2.242, 2.243, 2.242, 2.244, 2.243, 2.244		5.0	4.667	3.806	3.411	3.179		2.915	2.832	2.767	2.714	2.671	2.635		2.533			2.380
1.0 9,074 6,701 5,739 5,205 4,862 4,620 4,441 4,302 4,191 4,100 4,025 3,960 3,815 3,665 3,587 0.5 11,37 8,186 6,926 6,233 5,791 5,482 5,253 5,076 4,935 4,820 4,724 4,643 4,460 4,270 4,173 25.0 1,440 1,533 1,532 1,519 1,507 1,495 1,485 1,477 1,470 1,463 1,458 1,453 1,441 1,428 1,421 1,00 3,102 2,726 2,522 2,395 2,307 2,243 2,193 2,154 2,122 2,095 2,073 2,054 2,010 1,962 1,938 5,0 4,600 3,739 3,344 3,112 2,958 2,848 2,764 2,699 2,646 2,602 2,565 2,534 2,463 2,388 2,349 2,6 6,298 4,857 4,242 3,892 3,663 3,501 3,380 3,285 3,209 3,147 3,095 3,050 2,949 2,844 2,789 1,10 8,862 6,515 5,564 5,035 4,695 4,456 4,278 4,140 4,030 3,939 3,864 3,800 3,656 3,505 3,427 0,5 11,06 7,922 6,680 5,998 5,562 5,257 5,031 4,857 4,717 4,603 4,508 4,428 4,247 4,059 3,961 2,50 1,106 7,922 6,680 5,998 5,562 5,257 5,031 4,857 4,717 4,603 4,508 4,428 4,247 4,059 3,961 2,50 1,106 7,922 6,808 5,998 5,562 5,257 5,031 4,857 4,717 4,603 4,508 4,428 4,247 4,059 3,961 2,50 1,106 7,922 6,880 5,998 5,562 5,257 5,031 4,857 4,717 4,603 4,508 4,428 4,247 4,059 3,961 2,00 2,037 2,017 1,972 1,924 1,899 2,037 2,017 1,972 1,924 1,899 2,037 2,017 2,441 2,404 3,369 2,369 2,341 2,329 3,199 3,123 3,060 3,008 2,963 2,862 2,756 2,710 1,481 4,474 4,674 4,536 4,424 4,329 4,250 4,070 3,883 3,786 2,00 1,00 6,476 5,803 5,372 5,071 4,847 4,674 4,536 4,424 4,329 4,250 4,070 3,883 3,786 2,01 1,425 1,514 1,510 1,497 1,483 1,471 1,460 1,451 1,431 1,431 1,426 1,431 1,436 1,891 1,866 5,0 1,449 3,534 3,539 3,007 2,852 2,741 2,657 2,591 2,538 2,942 2,862 2,352 2,276 2,335 2,444 2,275 2,335 2,444 2,353 2,444 3,534 3,239 3,007 2,852 2,741 2,657 2,591 2,588 2,942 2,895 2,898 2,788 2,898 2,788 2,898 2,788 2,898 2,788 2,898 2,788 2,898 2,788 2,898 2,788 2,898 2,788 2,891 2,898 2,788 2,898 2,788 2,898 2,788 2,898 2,788 2,898 2,788 2,898 2,788 2,898 2,788 2,898 2,788 2,898 2,788 2,898 2,788 2,898 2,788 2,898 2,788 2,898 2,788 2,898 2,788 2,781 2,78		2.5	6.414	4.965	4.347			3.604	3.483	3.388	3.312	3.250			3.053	2.948	2.893	2.837
0.5   11.37   8.186   6.926   6.233   5.791   5.482   5.253   5.076   4.935   4.820   4.724   4.643   4.460   4.270   4.173   1.440   1.533   1.532   1.519   1.507   1.495   1.485   1.477   1.470   1.463   1.458   1.441   1.428   1.421   1.00   3.102   2.726   2.522   2.395   2.307   2.243   2.193   2.154   2.122   2.095   2.073   2.054   2.010   1.962   1.938   5.0   4.600   3.739   3.344   3.112   2.958   2.848   2.764   2.699   2.646   2.602   2.555   2.534   2.463   2.388   2.349   2.5   6.298   4.857   4.223   3.803   3.285   3.209   3.147   3.095   3.050   2.949   2.844   2.789   1.0   8.862   6.515   5.564   5.035   4.656   4.278   4.140   4.030   3.939   3.864   3.800   3.656   3.503   3.427   0.5   11.06   7.922   6.805   5.998   5.562   5.257   5.031   4.857   4.717   4.603   4.508   4.428   4.247   4.059   3.961   1.00   2.072   6.259   2.490   2.361   2.790   2.142   1.443   1.443   1.438   1.426   1.443   1.405   1.899   3.050   2.490   2.361   2.730   2.707   2.641   2.588   2.544   2.507   2.447   2.642   2.388   2.342   2.507   2.445   2.448   2.448   4.448   4.438   4.456   4.188   4.144   4.188   4.144   4.188   4.144   4.189   4.		1.0	9.074	6.701	5.73			4.620	4.441	4.302	4.191	4.100				3.665	3.587	3.507
25.0 1.440 1.533 1.532 1.519 1.507 1.495 1.485 1.477 1.470 1.463 1.458 1.453 1.441 1.428 1.421 1.00 3.102 2.726 2.522 2.395 2.307 2.243 2.193 2.154 2.122 2.095 2.073 2.054 2.010 1.962 1.938 5.0 4.600 3.739 3.344 3.112 2.958 2.848 2.764 2.699 2.646 2.602 2.565 2.534 2.463 2.388 2.349 2.5 6.298 4.857 4.242 3.892 3.663 3.501 3.380 3.285 3.209 3.147 3.095 3.050 2.949 2.844 2.789 1.0 8.862 6.515 5.564 5.035 4.695 4.456 4.278 4.140 4.030 3.939 3.864 3.800 3.656 3.505 3.427 0.5 11.06 7.922 6.680 5.998 5.562 5.257 5.031 4.857 4.717 4.603 4.508 4.288 4.247 4.059 3.961 2.50 1.106 7.922 6.680 5.998 5.562 5.257 5.031 4.857 4.717 4.603 4.508 4.428 4.247 4.059 3.961 2.50 1.432 1.523 1.520 1.507 1.494 1.482 1.472 1.463 1.456 1.449 1.443 1.438 1.425 1.413 1.405 1.00 2.03 2.695 2.490 2.361 2.273 2.208 2.138 2.139 2.109 2.085 2.037 2.047 2.405 2.382 2.288 2.543 3.682 3.387 3.056 2.901 2.790 2.707 2.641 2.588 2.544 2.507 2.475 2.403 2.328 2.288 2.54 3.868 3.539 5.417 4.893 4.556 4.318 4.142 4.004 3.895 3.803 3.730 3.666 3.522 3.372 3.294 0.5 10.80 7.701 6.476 5.803 5.372 5.071 4.847 4.674 4.536 4.244 4.329 4.250 4.070 3.883 3.786 2.08 2.085 2.085 2.095 2.097 2.097 2.097 2.097 2.098 2.095 2.097 2.998 2.095 2.097 2.999 2.097 2.999 2.097 2.099 3.007 2.852 2.741 2.657 2.591 2.538 2.494 2.456 2.425 2.352 2.276 2.235 2.741 2.657 2.591 2.538 2.494 2.456 2.425 2.335 2.244 2.773 4.437 4.202 4.026 3.890 3.780 3.691 3.616 3.553 3.409 3.259 3.181 0.5 8.531 6.226 5.292 4.773 4.437 4.202 4.521 4.324 4.272 4.179 4.099 3.593 3.731 3.383 3.731 3.293 3.095 3.751 4.384 4.272 4.179 4.099 3.593 3.731 3.383 3.731 3.383 3.731 3.393 3.731 3.393 3.731 3.393 3.731 3.393 3.731 3.393 3.731 3.293 3.731 3.293 3.731 3.293 3.731 3.293 3.731 3.293 3.731 3.293 3.731 3.293 3.731 3.293 3.731 3.293 3.731 3.293 3.731 3.293 3.731 3.293 3.731 3.293 3.731 3.293 3.731 3.293 3.731 3.293 3.731 3.233 3.731 3.233 3.731 3.233 3.731 3.233 3.234 3.233 3.233 3.233 3.233 3.233 3.233 3.233 3.233 3.233 3.233 3.233 3.244 2.733 3.244 2.735 2.233 2.245 2.235 2.235 2.235 2.235 2.235 2.		0.5		8.186	6.926			5.482	5.253	5.076	4.935	4.820			4.460		4.173	4.073
10.0 3.102 2.726 2.352 2.395 2.307 2.243 2.193 2.154 2.122 2.095 2.073 2.054 2.010 1.962 1.938 5.0 4.600 3.739 3.344 3.112 2.958 2.848 2.764 2.699 2.646 2.602 2.555 2.534 2.463 2.388 2.349 2.5 6.298 4.857 4.242 3.892 3.663 3.501 3.380 3.285 3.209 3.147 3.095 3.050 2.949 2.844 2.789 1.0 8.862 6.515 5.564 5.035 4.695 4.456 4.278 4.140 4.030 3.939 3.864 3.800 3.656 3.505 3.947 4.059 3.961 1.0 8.862 6.515 5.564 5.035 4.695 4.456 4.278 4.140 4.030 3.939 3.864 3.800 3.656 3.505 3.947 4.059 3.961 1.0 8.862 6.515 5.564 5.035 2.245 2.275 5.031 4.857 4.717 4.603 4.508 4.28 4.247 4.059 3.961 1.0 3.073 2.695 2.490 2.361 2.273 2.208 2.119 2.086 2.059 2.037 2.017 1.972 1.924 1.899 5.0 4.543 3.682 3.287 3.056 2.901 2.790 2.707 2.641 2.588 2.544 2.507 2.475 2.403 2.328 2.288 2.5 6.200 4.765 4.153 3.804 3.576 3.415 3.293 3.199 3.123 3.060 3.008 2.963 2.862 2.756 2.701 1.0 8.683 6.359 5.417 4.893 4.556 4.318 4.142 4.004 3.895 3.805 3.730 3.666 3.522 3.372 3.294 0.5 10.80 7.701 6.476 5.803 5.372 5.071 4.847 4.674 4.536 4.424 4.329 4.250 4.070 3.883 3.786 2.03 3.048 2.668 2.462 2.333 2.244 2.178 2.128 2.088 2.055 2.038 2.055 2.332 2.376 2.235 2.375 2.375 2.376 2.335 2.349 3.643 3.239 3.007 2.852 2.741 2.657 2.591 2.538 2.494 2.456 2.425 2.352 2.376 2.235 2.376 2.335 2.341 3.219 3.125 3.049 2.986 2.934 2.889 2.788 2.681 2.625 2.355 2.376 3.588 2.388 2.389 3.781 3.789 3.781 3.789 3.781 3.789 3.781 3.789 3.781 3.789 3.781 3.789 3.781 3.781 3.789 3.781 3.789 3.781 3.789 3.781 3.781 3.781 3.781 3.781	14	25.0	1.440	1.533	1.53			1.495	1.485	1.477	1.470	1.463	1		1.441	1.428	1.421	1.414
5.0 4,600 3.739 3.344 3.112 2.958 2.848 2.764 2.699 2.646 2.602 2.565 2.534 2.463 2.388 2.349 2.84 2.789 2.6 6.298 4.857 4.242 3.892 3.663 3.501 3.380 3.285 3.209 3.147 3.095 3.050 2.949 2.844 2.789 1.0 8.862 6.515 5.564 5.035 4.656 4.278 4.140 4.030 3.939 3.864 3.800 3.656 3.505 3.427 0.5 11.06 7.922 6.680 5.998 5.562 5.257 5.031 4.857 4.717 4.603 4.508 4.28 4.247 4.059 3.961 1.00 3.073 2.695 2.490 2.361 2.273 2.08 2.158 2.119 2.086 2.059 2.037 2.017 1.972 1.924 1.899 5.0 4.543 3.682 3.287 3.056 2.901 2.790 2.707 2.641 2.588 2.544 2.507 2.475 2.403 2.328 2.288 2.5 6.200 4.765 4.153 3.804 3.576 3.415 3.293 3.199 3.123 3.060 3.008 2.963 2.862 2.756 2.701 1.00 8.683 6.359 5.417 4.893 4.556 4.318 4.142 4.004 3.895 3.805 3.730 3.666 3.522 3.372 3.294 0.5 10.80 7.701 6.476 5.803 5.372 5.071 4.847 4.674 4.536 4.424 4.329 4.250 4.070 3.883 3.786 2.008 2.462 2.333 2.244 2.178 2.128 2.088 2.055 2.005 1.985 1.940 1.891 1.866 5.0 4.494 3.634 3.239 3.007 2.852 2.741 2.657 2.591 2.538 2.949 2.456 2.425 2.352 2.276 2.235 2.276 2.355 2.371 3.299 2.318 1.201 2.350 3.341 3.219 3.125 3.049 2.986 2.934 2.889 2.788 2.683 2.375 3.294 2.456 2.425 2.352 2.276 2.235 2.276 2.355 2.274 2.255 2.741 2.657 2.591 2.538 2.494 2.456 2.425 2.352 2.276 2.235 2.276 2.355 2.274 2.235 2.375 2.374 2.369 3.780 3.693 3.780 3.693 3.780 3.693 3.780 3.693 3.780 3.780 3.693 3.780 3.780 3.780 3.780 3.780 3.781 3.293 3.097 2.852 2.741 2.657 2.591 2.538 2.494 2.456 2.425 2.352 2.276 2.235 2.276 2.235 2.741 2.657 2.591 2.538 2.944 2.456 2.425 2.352 2.276 2.235 2.276 2.235 2.276 2.235 2.276 2.235 2.274 2.235 3.244 2.178 2.128 2.088 2.055 2.088 2.055 2.082 2.095 2.995 2.995 2.995 3.181 0.588 2.055 2.055 2.059 2.095 2.995 2.995 2.995 2.995 2.995 3.181 0.588 2.055 2.0		10.0	3.102		2.52			2.243	2.193	2.154	2.122	2.095			2.010	1.962		1.912
2.5 6.298 4.857 4.242 3.892 3.663 3.501 3.380 3.285 3.209 3.147 3.095 3.050 2.949 2.844 2.789 1.00 8.862 6.515 5.564 5.035 4.656 4.278 4.140 4.030 3.939 3.864 3.800 3.656 3.505 3.427 0.5 11.06 7.922 6.680 5.998 5.562 5.257 5.031 4.857 4.717 4.603 4.508 4.428 4.247 4.059 3.961 2.50 11.06 7.922 6.680 5.998 5.562 5.257 5.031 4.857 4.717 4.603 4.508 4.428 4.247 4.059 3.961 2.50 11.06 3.073 2.695 2.490 2.361 2.273 2.208 2.158 2.119 2.086 2.059 2.037 2.017 1.972 1.924 1.899 5.0 4.543 3.682 3.287 3.056 2.901 2.790 2.707 2.641 2.588 2.544 2.507 2.475 2.403 2.328 2.288 2.5 6.200 4.765 4.153 3.804 3.576 3.415 3.293 3.199 3.123 3.060 3.008 2.963 2.862 2.756 2.701 1.0 8.683 6.359 5.417 4.893 4.556 4.318 4.142 4.004 3.895 3.805 3.730 3.666 3.522 3.372 3.294 0.5 1.0.80 7.701 6.476 5.803 5.372 5.071 4.847 4.674 4.536 4.424 4.329 4.250 4.070 3.883 3.786 2.03 1.425 1.514 1.510 1.497 1.483 1.471 1.460 1.451 1.443 1.437 1.431 1.426 1.413 1.399 1.391 1.00 3.048 2.668 2.462 2.333 2.244 2.178 2.128 2.088 2.055 2.028 2.005 1.985 1.940 1.891 1.866 5.0 4.494 3.634 3.239 3.007 2.852 2.741 2.657 2.591 2.538 2.494 2.456 2.425 2.352 2.276 2.235 2.75 6.115 4.687 4.077 3.729 3.502 3.341 3.219 3.125 3.049 2.986 2.934 2.889 2.788 2.681 2.625 1.0 8 5.31 6.226 5.292 4.773 4.437 4.202 4.026 3.890 3.784 4.272 4.179 4.099 3.920 3.734 3.638 3.734 3.638		5.0	4.600	3.739	3.344			2.848	2.764	2.699		2.602			2.463	2.388	2.349	2.308
1.0 8.862 6.515 5.564 5.035 4.695 4.456 4.278 4.140 4.030 3.939 3.864 3.800 3.656 3.505 3.427  1.10 8.862 6.515 5.564 5.035 4.695 4.456 4.278 4.140 4.030 3.939 3.864 3.800 3.656 3.505 3.427  25.0 11.06 7.922 6.680 5.998 5.562 5.257 5.031 4.857 4.717 4.603 4.508 4.428 4.247 4.059 3.961  25.0 1.432 1.523 1.520 1.507 1.494 1.482 1.472 1.463 1.456 1.449 1.443 1.438 1.426 1.413 1.405  25.0 4.543 3.682 3.287 3.056 2.901 2.790 2.707 2.641 2.588 2.544 2.507 2.475 2.403 2.328 2.288  25.0 4.543 3.682 3.287 3.056 2.901 2.790 2.707 2.641 2.588 2.544 2.507 2.475 2.403 2.328 2.288  26.2 6.200 4.765 4.153 3.804 3.576 3.415 3.293 3.199 3.123 3.060 3.008 2.963 2.862 2.756 2.701  27.0 8.683 6.359 5.417 4.893 4.556 4.318 4.142 4.004 3.895 3.805 3.730 3.666 3.522 3.372 3.294  28.0 10.80 7.701 6.476 5.803 5.372 5.071 4.847 4.674 4.536 4.424 4.329 4.250 4.070 3.883 3.786  29.1 1.425 1.514 1.510 1.497 1.483 1.471 1.460 1.451 1.443 1.437 1.431 1.426 1.413 1.399 1.391  20.1 3.048 2.668 2.462 2.333 2.244 2.178 2.128 2.088 2.055 2.028 2.005 1.985 1.940 1.891 1.866  20.1 4.494 3.634 3.239 3.007 2.852 2.741 2.657 2.591 2.538 2.494 2.456 2.425 2.352 2.276 2.235  20.1 8.531 6.226 5.292 4.773 4.437 4.202 4.026 3.890 3.780 3.691 3.616 3.553 3.409 3.259 3.181  20.1 8.531 6.226 5.292 4.773 4.437 4.692 4.521 4.384 4.272 4.179 4.099 3.920 3.734 3.638		2.5	6.298	4.857	4.24			3.501	3.380	3.285	3.209	3.147						2.732
0.5   11.06		1.0	8.862		5.56			4.456	4.278	4.140	4.030	3.939					3.427	3.348
25.0 1.432 1.523 1.520 1.507 1.494 1.482 1.472 1.463 1.456 1.449 1.443 1.438 1.426 1.413 1.405 1.00 3.073 2.695 2.490 2.361 2.273 2.208 2.158 2.119 2.086 2.059 2.037 2.017 1.972 1.924 1.899 5.0 4.543 3.682 3.287 3.056 2.901 2.790 2.707 2.641 2.588 2.544 2.507 2.475 2.403 2.328 2.288 2.5 6.200 4.765 4.153 3.804 3.576 3.415 3.293 3.199 3.123 3.060 3.008 2.963 2.862 2.756 2.701 1.0 8.683 6.359 5.417 4.893 4.556 4.318 4.142 4.004 3.895 3.805 3.730 3.666 3.522 3.372 3.294 0.5 10.80 7.701 6.476 5.803 5.372 5.071 4.847 4.674 4.536 4.424 4.329 4.250 4.070 3.883 3.786 2.50 1.425 1.514 1.510 1.497 1.483 1.471 1.460 1.451 1.443 1.437 1.431 1.426 1.413 1.399 1.391 1.806 3.048 2.668 2.462 2.333 2.244 2.178 2.128 2.088 2.055 2.028 2.005 1.985 1.940 1.891 1.866 5.0 4.494 3.634 3.239 3.007 2.852 2.741 2.657 2.591 2.538 2.944 2.456 2.425 2.352 2.276 2.235 2.5 6.115 4.687 4.077 3.729 3.502 3.341 3.219 3.125 3.049 2.986 2.934 2.889 2.788 2.681 2.625 1.05 10.58 7.514 6.303 5.638 5.212 4.913 4.692 4.521 4.384 4.272 4.179 4.099 3.920 3.734 3.638 3.638		0.5		7.922				5.257	5.031	4.857		4.603	4.508		4.247	4.059	3.961	3.862
10.0 3.073 2.695 2.490 2.361 2.273 2.208 2.158 2.119 2.086 2.059 2.037 2.017 1.972 1.924 1.899 5.0 4.543 3.682 3.287 3.056 2.901 2.790 2.707 2.641 2.588 2.544 2.507 2.475 2.403 2.328 2.288 2.5 6.200 4.765 4.153 3.804 3.576 3.415 3.293 3.199 3.123 3.060 3.008 2.963 2.862 2.756 2.701 1.0 8.683 6.359 5.417 4.893 4.556 4.318 4.142 4.004 3.895 3.805 3.730 3.666 3.522 3.372 3.294 0.5 10.80 7.701 6.476 5.803 5.372 5.071 4.847 4.674 4.536 4.424 4.329 4.250 4.070 3.883 3.786 2.0 1.425 1.514 1.510 1.497 1.483 1.471 1.460 1.451 1.443 1.437 1.431 1.426 1.413 1.399 1.391 1.00 3.048 2.668 2.462 2.333 2.244 2.178 2.128 2.088 2.055 2.028 2.005 1.985 1.940 1.891 1.866 5.0 4.494 3.634 3.239 3.007 2.852 2.741 2.657 2.591 2.538 2.494 2.456 2.425 2.352 2.276 2.235 2.376 2.335 6.115 4.687 4.077 3.729 3.502 3.341 3.219 3.125 3.049 2.986 2.934 2.889 2.788 2.681 2.625 1.0 8.531 6.226 5.292 4.773 4.437 4.202 4.026 3.890 3.784 4.272 4.179 4.099 3.920 3.734 3.638 3.638 7.514 6.303 5.638 5.212 4.913 4.692 4.521 4.384 4.272 4.179 4.099 3.920 3.734 3.638	15	25.0	1.432	1.523	1.520			1.482	1.472	1.463	1.456	1.449	1.443	ı	1.426		1.405	1.397
5.0 4.543 3.682 3.287 3.056 2.901 2.790 2.707 2.641 2.588 2.544 2.507 2.475 2.403 2.328 2.288 2.588 2.589 3.60 3.008 2.963 2.862 2.756 2.701 2.5 6.200 4.765 4.153 3.804 3.576 3.415 3.293 3.199 3.123 3.060 3.008 2.963 2.862 2.756 2.701 2.9 8.683 6.359 5.417 4.893 4.556 4.318 4.142 4.004 3.895 3.805 3.730 3.666 3.522 3.372 3.294 0.5 10.80 7.701 6.476 5.803 5.372 5.071 4.847 4.674 4.536 4.424 4.329 4.250 4.070 3.883 3.786 2.50 1.425 1.514 1.510 1.497 1.483 1.471 1.460 1.451 1.443 1.437 1.431 1.426 1.413 1.399 1.391 1.90 3.048 2.668 2.462 2.333 2.244 2.178 2.128 2.088 2.055 2.028 2.005 1.985 1.940 1.891 1.866 2.0 4.494 3.634 3.239 3.007 2.852 2.741 2.657 2.591 2.538 2.494 2.456 2.425 2.352 2.276 2.235 2.276 2.235 2.318 1.00 8.531 6.226 5.292 4.773 4.437 4.202 4.026 3.890 3.780 3.691 3.616 3.553 3.409 3.529 3.181 0.58 7.514 6.303 5.638 5.212 4.913 4.692 4.521 4.384 4.272 4.179 4.099 3.920 3.734 3.638		10.0		2.695	2.490			2.208		2.119					1.972		1.899	1.873
2.5 6.200 4.765 4.153 3.804 3.576 3.415 3.293 3.199 3.123 3.060 3.008 2.963 2.862 2.756 2.701  8.683 6.359 5.417 4.893 4.556 4.318 4.142 4.004 3.895 3.805 3.730 3.666 3.522 3.372 3.294  0.5 10.80 7.701 6.476 5.803 5.372 5.071 4.847 4.674 4.536 4.424 4.329 4.250 4.070 3.883 3.786  25.0 1.425 1.514 1.510 1.497 1.483 1.471 1.460 1.451 1.443 1.437 1.431 1.426 1.413 1.399 1.391  10.0 3.048 2.668 2.462 2.333 2.244 2.178 2.128 2.088 2.055 2.028 2.005 1.985 1.940 1.891 1.866  5.0 4.494 3.634 3.239 3.007 2.852 2.741 2.657 2.591 2.538 2.494 2.456 2.425 2.352 2.276 2.235  2.5 6.115 4.687 4.077 3.729 3.502 3.341 3.219 3.125 3.049 2.986 2.934 2.889 2.788 2.681 2.625  1.0 8.531 6.226 5.292 4.773 4.437 4.202 4.026 3.890 3.780 3.691 3.616 3.553 3.409 3.259 3.181  0.5 10.58 7.514 6.303 5.638 5.212 4.913 4.692 4.521 4.384 4.272 4.179 4.099 3.920 3.734 3.638		5.0	4.543					2.790	2.707	2.641	2.588	2.544				2.328	2.288	2.247
1.0 8.683 6.359 5.417 4.893 4.556 4.318 4.142 4.004 3.895 3.805 3.730 3.666 3.522 3.372 3.294 0.5 10.80 7.701 6.476 5.803 5.372 5.071 4.847 4.674 4.536 4.424 4.329 4.250 4.070 3.883 3.786 25.0 1.425 1.514 1.510 1.497 1.483 1.471 1.460 1.451 1.443 1.437 1.431 1.426 1.413 1.399 1.391 10.0 3.048 2.668 2.462 2.333 2.244 2.178 2.128 2.088 2.055 2.028 2.005 1.985 1.940 1.891 1.866 5.0 4.494 3.634 3.239 3.007 2.852 2.741 2.657 2.591 2.538 2.494 2.456 2.425 2.352 2.276 2.235 2.5 6.115 4.687 4.077 3.729 3.502 3.341 3.219 3.125 3.049 2.986 2.934 2.889 2.788 2.681 2.625 1.0 8.531 6.226 5.292 4.773 4.202 4.026 3.890 3.784 4.272 4.179 4.099 3.920 3.734 3.638		2.5	6.200	4.765	4.15				3.293	3.199		3.060			2.862	2.756		2.644
0.5 10.80 7.701 6.476 5.803 5.372 5.071 4.847 4.674 4.536 4.424 4.329 4.250 4.070 3.883 3.786 25.0 1.425 1.514 1.510 1.497 1.483 1.471 1.460 1.451 1.443 1.437 1.431 1.426 1.413 1.399 1.391 1.00 3.048 2.668 2.462 2.333 2.244 2.178 2.128 2.088 2.055 2.028 2.005 1.985 1.940 1.891 1.866 5.0 4.494 3.634 3.239 3.007 2.852 2.741 2.657 2.591 2.538 2.494 2.456 2.425 2.352 2.276 2.235 2.35 2.15 4.687 4.077 3.729 3.502 3.341 3.219 3.125 3.049 2.986 2.934 2.889 2.788 2.681 2.625 1.00 8.531 6.226 5.292 4.773 4.437 4.202 4.026 3.890 3.780 3.691 3.616 3.553 3.409 3.259 3.181 0.58 10.58 7.514 6.303 5.638 5.212 4.913 4.692 4.521 4.384 4.272 4.179 4.099 3.920 3.734 3.638		1.0		6.359					4.142	4.004	3.895	3.805				3.372	3.294	3.214
25.0 1.425 1.514 1.510 1.497 1.483 1.471 1.460 1.451 1.443 1.437 1.431 1.426 1.413 1.399 1.391 1.301 3.048 2.668 2.462 2.333 2.244 2.178 2.128 2.088 2.055 2.028 2.005 1.985 1.940 1.891 1.866 5.0 4.494 3.634 3.239 3.007 2.852 2.741 2.657 2.591 2.538 2.494 2.456 2.425 2.352 2.276 2.235 2.3 6.115 4.687 4.077 3.729 3.502 3.341 3.219 3.125 3.049 2.986 2.934 2.889 2.788 2.681 2.625 1.0 8.531 6.226 5.292 4.773 4.437 4.202 4.026 3.890 3.780 3.691 3.616 3.553 3.409 3.259 3.181 0.5 10.58 7.514 6.303 5.638 5.212 4.913 4.692 4.521 4.384 4.272 4.179 4.099 3.920 3.734 3.638		0.5		7.701	6.476			5.071	4.847	4.674		4.424	4.329				3.786	3.687
3.048 2.668 2.462 2.333 2.244 2.178 2.128 2.088 2.055 2.028 2.005 1.985 1.940 1.891 1.866 4.494 3.634 3.239 3.007 2.852 2.741 2.657 2.591 2.538 2.494 2.456 2.425 2.352 2.276 2.235 6.115 4.687 4.077 3.729 3.502 3.341 3.219 3.125 3.049 2.986 2.934 2.889 2.788 2.681 2.625 8.531 6.226 5.292 4.773 4.437 4.202 4.026 3.890 3.780 3.691 3.616 3.553 3.409 3.259 3.181 10.58 7.514 6.303 5.638 5.212 4.913 4.692 4.521 4.384 4.272 4.179 4.099 3.920 3.734 3.638	16	25.0	1.425	1.514	1.51			1.471	1.460	1.451	1.443	1.437	1.431	1.426	1.413	1.399	1.391	1.383
4.4943.6343.2393.0072.8522.7412.6572.5912.5382.4942.4562.4252.3522.2762.2356.1154.6874.0773.7293.5023.3413.2193.1253.0492.9862.9342.8892.7882.6258.5316.2265.2924.7734.4374.2024.0263.8903.7803.6913.6163.5533.4093.2593.18110.587.5146.3035.6385.2124.9134.6924.5214.3844.2724.1794.0993.9203.7343.638		10.0	3.048	2.668	2.462			2.178	2.128	2.088	2.055	2.028					1.866	1.839
6.115 4.687 4.077 3.729 3.502 3.341 3.219 3.125 3.049 2.986 2.934 2.889 2.788 2.681 2.625 8.531 6.226 5.292 4.773 4.437 4.202 4.026 3.890 3.780 3.691 3.616 3.553 3.409 3.259 3.181 10.58 7.514 6.303 5.638 5.212 4.913 4.692 4.521 4.384 4.272 4.179 4.099 3.920 3.734 3.638		5.0	4.494	3.634	3.239			2.741	2.657	2.591	2.538	2.494				2.276		2.194
8.531 6.226 5.292 4.773 4.437 4.202 4.026 3.890 3.780 3.691 3.616 3.553 3.409 3.259 3.181 3 10.58 7.514 6.303 5.638 5.212 4.913 4.692 4.521 4.384 4.272 4.179 4.099 3.920 3.734 3.638 3		2.5	6.115	4.687	4.07			3.341	3.219	3.125	3.049	2.986				2.681	2.625	2.568
10.58 7.514 6.303 5.638 5.212 4.913 4.692 4.521 4.384 4.272 4.179 4.099 3.920 3.734 3.638 3	_	1.0	8.531	6.226				4.202	4.026	3.890	3.780	3.691	3.616		3.409	3.259	3.181	3.101
		0.5		7.514	6.30		5	4.913	4.692	4.521	4.384	4.272			3.920	$\mathcal{C}$	3.638	

Tabelle B.10: Quantilen-Tabelle der F-Verteilung

,	$F^{lpha}_{n,m}$								ш	1							
n	$\alpha$ [%]	1	2	8	4	S	9	7	∞	6	10	11	12	15	20	24	30
17	25.0	1.419	1.506	1.502	1.487	1.473	1.460	1.450	1.441	1.433	1.426	1.420	1.414	1.401	1.387	1.379	1.370
	10.0	3.026	3.026 2.645 2.4	2.437	2.308	2.218	2.152	2.102	2.061	2.028	2.001	1.978	1.958	1.912	1.862	1.836	1.809
	5.0	4.451	4.451 3.592 3.1	3.197	2.965	2.810	2.699	2.614	2.548	2.494	2.450	2.413	2.381	2.308	2.230	2.190	2.148
	2.5	6.042	4.619	4.011	3.665	3.438	3.277	3.156	3.061	2.985	2.922	2.870	2.825	2.723	2.616	2.560	2.502
	1.0	8.400	6.112	5.185	4.669	4.336	4.102	3.927	3.791	3.682	3.593	3.519	3.455	3.312	3.162	3.084	3.003
	0.5	10.38	7.354 6.1	6.156	5.497	5.075	4.779	4.559	4.389	4.254	4.142	4.050	3.971	3.793	3.607	3.511	3.412
18	25.0	1.413	1.499	1.494	1.479	1.464	1.452	1.441	1.431	1.423	1.416	1.410	1.404	1.391	1.376	1.368	1.359
	10.0	3.007	2.624	2.416	2.286	2.196	2.130	2.079	2.038	2.005	1.977	1.954	1.933	1.887	1.837	1.810	1.783
	5.0	4.414	3.555	3.160	2.928	2.773	2.661	2.577	2.510	2.456	2.412	2.374	2.342	2.269	2.191	2.150	2.107
	2.5	5.978	4.560 3.9	3.954	3.608	3.382	3.221	3.100	3.005	2.929	2.866	2.814	2.769	2.667	2.559	2.503	2.445
	1.0	8.285	6.013	5.092	4.579	4.248	4.015	3.841	3.705	3.597	3.508	3.434	3.371	3.227	3.077	2.999	2.919
	0.5	10.22	7.215	6.028	5.375	4.956	4.663	4.445	4.276	4.141	4.030	3.938	3.860	3.683	3.498	3.402	3.303
19	25.0	1.408	1.493	1.487	1.472	1.457	1.444	1.432	1.423	1.414	1.407	1.401	1.395	1.382	1.367	1.358	1.349
	10.0	2.990	2.606 2.3	2.397	2.266	2.176	2.109	2.058	2.017	1.984	1.956	1.932	1.912	1.865	1.814	1.787	1.759
	5.0	4.381	3.522	3.127	2.895	2.740	2.628	2.544	2.477	2.423	2.378	2.340	2.308	2.234	2.155	2.114	2.071
	2.5	5.922	4.508	3.903	3.559	3.333	3.172	3.051	2.956	2.880	2.817	2.765	2.720	2.617	2.509	2.452	2.394
	1.0	8.185	5.926 5.0	5.010	4.500	4.171	3.939	3.765	3.631	3.523	3.434	3.360	3.297	3.153	3.003	2.925	2.844
	0.5	10.07	7.093	5.916	5.268	4.853	4.561	4.345	4.177	4.043	3.933	3.841	3.763	3.587	3.402	3.306	3.208
20	25.0	1.404	1.487	1.481	1.465	1.450	1.437	1.425	1.415	1.407	1.399	1.393	1.387	1.374	1.358	1.349	1.340
	10.0	2.975	2.589 2.3	2.380	2.249	2.158	2.091	2.040	1.999	1.965	1.937	1.913	1.892	1.845	1.794	1.767	1.738
	5.0	4.351	3.493 3.0	3.098	2.866	2.711	2.599	2.514	2.447	2.393	2.348	2.310	2.278	2.203	2.124	2.082	2.039
	2.5	5.871	4.461 3.8	3.859	3.515	3.289	3.128	3.007	2.913	2.837	2.774	2.721	2.676	2.573	2.464	2.408	2.349
	1.0	8.096	5.849 4.9	4.938	4.431	4.103	3.871	3.699	3.564	3.457	3.368	3.294	3.231	3.088	2.938	2.859	2.778
	0.5	9.944	986.9	5.818	5.174	4.762	4.472	4.257	4.090	3.956	3.847	3.756	3.678	3.502	3.318	3.222	3.123

Tabelle B.11: Quantilen-Tabelle der F-Verteilung

n         a [%]         1         2         3         4         5         6         7         8         9         10         11         15         20         24         30           24         25.0         1:390         1:470         1:462         1:445         1:441         1:402         1:392         1:371         1:361         1:371         1:311         1:321         1:321         1:321         1:311         1:311         1:321         1:321         1:321         1:321         1:321         1:321         1:321         1:321         1:321         1:321         1:321         1:331         1:322         1:341         1:331         1:321         1:331         1:321         1:331         1:331         1:331         1:331         1:331         1:331         1:331         1:331         1:331         1:331		$F^{lpha}_{n,m}$								ш	1							
25.0 1.390 1.470 1.462 1.445 1.428 1.414 1.402 1.392 1.383 1.375 1.368 1.362 1.347 1.331 1.321 1.00 2.927 2.538 2.327 2.195 2.103 2.035 1.981 1.941 1.906 1.877 1.853 1.832 1.783 1.730 1.702 2.02 2.203 3.009 2.776 2.621 2.508 2.432 2.355 2.300 2.255 2.216 2.183 2.108 2.027 1.984 2.26 3.409 3.009 2.776 2.621 2.508 2.432 2.355 2.300 2.255 2.216 2.183 2.108 2.027 1.984 2.255 2.5717 4.319 3.721 3.379 3.155 2.995 2.874 2.779 2.703 2.640 2.586 2.541 2.437 2.327 2.266 2.570 1.366 1.5519 4.890 4.486 4.202 3.991 3.826 3.695 3.348 3.049 3.032 2.889 2.738 2.550 1.00 2.881 2.489 2.276 2.143 1.424 1.407 1.392 1.380 1.369 1.389 1.389 1.389 1.389 1.389 1.389 1.389 1.389 1.389 1.389 1.389 1.389 1.389 1.389 1.399 1.889 1.389 1.399 1.8	и	$\alpha$ [%]		2	3	4	S	9	7	∞	6	10	11	12	15	20	24	30
10.0 2.927 2.538 2.327 2.195 2.103 2.035 1.981 1.906 1.877 1.853 1.832 1.783 1.730 1.702 5.0 4.260 3.403 3.009 2.776 2.621 2.508 2.423 2.355 2.300 2.255 2.216 2.183 2.108 2.027 1.984 2.5 5.717 4.319 3.721 3.379 3.155 2.995 2.874 2.779 2.703 2.640 2.586 2.541 2.437 2.327 2.269 1.0 7.823 5.614 4.718 4.218 3.895 3.667 3.496 3.363 3.256 3.168 3.094 3.032 2.889 2.738 2.659 0.5 9.551 6.661 5.519 4.800 4.486 4.202 3.991 3.826 3.653 3.587 3.497 3.420 3.246 3.062 2.967 2.50 1.376 1.452 1.443 1.447 1.407 1.392 1.380 1.369 1.359 1.351 1.343 1.337 1.321 1.303 1.293 1.00 2.881 2.489 2.276 2.142 2.049 1.980 1.927 1.884 1.849 1.819 1.794 1.773 1.722 1.667 1.638 5.0 4.171 3.316 2.922 2.690 2.534 2.421 2.334 2.266 2.211 2.165 2.105 2.092 2.015 1.932 1.887 2.5 5.568 4.182 3.589 3.250 3.026 2.867 2.746 2.651 2.575 2.511 2.458 2.412 2.307 2.195 2.136 1.0 7.562 5.399 4.501 4.091 3.699 3.473 3.040 3.173 3.067 2.979 2.906 2.843 2.700 2.549 2.469 1.0 7.562 5.399 4.623 4.229 3.429 2.889 2.889 2.890 3.020 3.949 3.429 2.889 2.889 2.338 2.334 2.288 2.309 3.439 3	24	25.0	1.390	1.470	1.462	1.445	1.428	1.414	1.402	1.392	1.383	1.375	1.368	1.362	1.347	1.331	1.321	1.311
5.0 4,260 3,403 3,009 2,776 2,621 2,508 2,423 2,355 2,300 2,255 2,216 2,183 2,108 2,027 1,984 2,55 5,717 4,319 3,721 3,379 3,155 2,995 2,874 2,779 2,703 2,640 2,586 2,541 2,437 2,327 2,269 1.0 7,823 5,614 4,718 4,218 3,895 3,667 3,496 3,363 3,256 3,168 3,094 3,032 2,889 2,738 2,659 0.5 9,551 6,661 5,519 4,800 4,486 4,202 3,991 3,826 3,695 3,587 3,497 3,420 3,246 3,062 2,967 2,50 1,376 1,425 1,443 1,424 1,407 1,392 1,380 1,369 1,351 1,341 1,371 1,321 1,303 1,293 1,00 2,881 2,489 2,276 2,142 2,049 1,980 1,927 1,884 1,849 1,819 1,794 1,773 1,722 1,667 1,638 5,041 1,3316 2,922 2,690 2,534 2,421 2,334 2,266 2,211 2,165 2,126 2,092 2,015 1,932 1,887 1,0 1,256 2,568 4,182 3,589 3,250 3,026 2,867 2,746 2,651 2,575 2,511 2,458 2,412 2,307 2,195 2,136 1,0 1,556 2,390 4,510 4,018 3,699 3,473 3,904 3,173 3,067 2,979 2,906 2,843 2,700 2,549 2,469 1,0 1,576 2,539 4,623 4,223 3,949 3,742 3,580 3,430 3,430 3,430 3,440 3,340 3,473 3,828 3,137 1,337 1,341 1,312 1,295 1,275 1,267 1,265 1,367 1,363 1,435 1,424 1,404 1,386 1,371 1,337 1,345 1,337 1,341 1,310 1,310 1,310 1,310 2,332 2,839 2,606 2,449 2,336 2,492 2,		10.0	2.927	2.538		2.195	2.103	2.035	1.983	1.941	1.906							1.672
2.5 5.717 4.319 3.721 3.379 3.155 2.995 2.874 2.779 2.703 2.640 2.586 2.541 2.437 2.327 2.269 1.825 5.614 4.718 4.218 3.895 3.667 3.496 3.363 3.256 3.168 3.094 3.032 2.889 2.738 2.659 0.5 5.516 4.718 4.218 3.895 3.667 3.496 3.363 3.256 3.168 3.094 3.032 2.889 2.738 2.659 0.5 5.516 6.661 5.519 4.890 4.486 4.202 3.991 3.826 3.695 3.587 3.497 3.420 3.246 3.062 2.967 2.50 1.376 1.452 1.443 1.424 1.407 1.392 1.380 1.369 1.359 1.351 1.343 1.337 1.321 1.303 1.293 1.00 2.881 2.489 2.276 2.142 2.049 1.980 1.927 1.884 1.849 1.819 1.794 1.773 1.722 1.667 1.638 5.0 4.171 3.316 2.922 2.690 2.534 2.421 2.334 2.266 2.211 2.165 2.126 2.092 2.015 1.932 1.887 2.5 5.588 4.182 3.589 3.250 3.026 2.867 2.746 2.651 2.575 2.511 2.458 2.412 2.307 2.195 2.136 1.0 7.562 5.390 4.510 4.018 3.699 3.473 3.304 3.173 3.067 2.979 2.906 2.843 2.700 2.549 2.469 0.5 1.363 1.435 1.424 1.404 1.386 1.371 1.357 1.345 1.335 1.327 1.319 1.312 1.295 1.277 1.255 1.00 2.835 2.440 2.226 2.091 1.997 1.927 1.873 1.829 1.793 1.763 1.737 1.715 1.662 1.605 1.574 5.0 4.085 3.232 2.839 2.606 2.449 2.336 2.249 2.186 2.124 2.077 2.038 2.033 2.049 3.126 2.904 2.144 2.624 2.529 2.452 2.388 2.334 2.288 2.182 2.088 2.007 1.0 7.314 5.179 4.313 3.828 3.514 3.291 3.124 2.993 2.888 2.801 2.727 2.665 2.522 2.369 2.288 0.5 1.349 1.419 1.405 1.385 1.360 1.349 1.335 1.321 1.303 1.294 1.387 1.369 3.570 2.791 2.393 2.177 2.041 1.946 1.875 1.819 1.775 1.738 1.707 1.680 1.657 1.603 1.544 1.882 1.10 7.077 4.977 4.126 3.649 3.339 3.119 2.953 2.718 2.725 2.590 2.940 2.950 2.837 2.290 2.950 2.940 2.950 2.931 3.134 3.008 2.786 2.657 2.559 2.452 2.559 2.465 2.559 2.496 2.559 2.496 2.357 2.198 2.115 2.00 2.001 2.940 2.750 2.357 2.359 2.259 2.950 2		5.0	4.260	3.403		2.776		2.508	2.423	2.355	2.300	2.255			2.108	2.027	1.984	1.939
1.0 7.823 5.614 4.718 4.218 3.895 3.667 3.496 3.363 3.256 3.168 3.094 3.032 2.889 2.738 2.659 0.5 9.551 6.661 5.519 4.890 4.486 4.202 3.991 3.826 3.695 3.587 3.497 3.420 3.246 3.062 2.967 2.50 1.376 1.452 1.443 1.424 1.407 1.392 1.380 1.369 1.359 1.351 1.343 1.337 1.321 1.303 1.293 1.00 2.881 2.489 2.276 2.142 2.049 1.980 1.927 1.884 1.849 1.819 1.794 1.773 1.722 1.667 1.638 5.0 4.171 3.316 2.922 2.690 2.534 2.421 2.334 2.266 2.211 2.165 2.126 2.092 2.015 1.932 1.887 2.5 5.568 4.182 3.589 3.250 3.026 2.867 2.746 2.651 2.575 2.511 2.458 2.412 2.307 2.195 2.136 1.0 7.562 5.390 4.510 4.018 3.699 3.473 3.304 3.173 3.067 2.979 2.906 2.843 2.700 2.849 2.469 0.5 9.180 6.355 5.239 4.623 4.228 3.949 3.742 3.580 3.450 3.344 3.255 3.179 3.006 2.823 2.727 2.50 1.363 1.435 1.424 1.404 1.386 1.371 1.357 1.345 1.325 1.319 1.312 1.295 1.276 1.265 1.00 2.835 2.440 2.226 2.091 1.997 1.927 1.873 1.829 1.793 1.763 1.737 1.715 1.662 1.605 1.574 5.0 4.085 3.232 2.839 2.606 2.449 2.336 2.249 2.180 2.124 2.077 2.038 2.039 2.03 1.924 1.839 1.793 2.5 5.424 4.051 3.463 3.126 2.904 2.744 2.624 2.529 2.452 2.388 2.334 2.288 2.182 2.089 2.236 2.238 2.230 2.239 2.239 2.249 2.317 3.028 2.939 2.888 2.801 2.777 2.065 2.522 2.369 2.288 2.007 1.0 7.314 5.179 4.313 3.828 3.132 1.335 1.323 1.30 1.293 1.793 1.291 1.302 2.953 2.781 2.598 2.502 2.50 1.349 1.419 1.405 1.385 1.366 1.349 1.335 1.323 1.321 1.303 1.291 1.302 2.953 2.781 2.598 2.500 2.500 2.791 2.393 2.177 2.041 1.946 1.875 1.819 1.775 1.738 1.707 1.680 1.657 1.603 1.544 1.882 2.10 7.077 4.977 4.977 4.126 3.649 3.339 3.119 2.953 2.718 2.632 2.559 2.496 2.357 2.198 2.115 2.00 2.707 2.000 2.55 2.896 2.359 2.495 2.357 2.390 3.391 3.134 3.008 2.786 2.552 2.599 2.590 2.391 3.134 3.008 2.904 2.817 2.742 2.570 2.387 2.290		2.5	5.717	4.319		3.379	3.155	2.995		2.779	2.703	2.640			2.437	2.327	2.269	2.209
0.5 9.551 6.661 5.519 4.890 4.486 4.202 3.991 3.826 3.695 3.587 3.497 3.420 3.246 3.062 2.967 250 1.376 1.452 1.443 1.424 1.407 1.392 1.380 1.369 1.359 1.351 1.343 1.321 1.303 1.293 1.00 2.881 2.489 2.276 2.142 2.049 1.980 1.927 1.884 1.849 1.819 1.794 1.773 1.722 1.667 1.638 5.0 4.171 3.316 2.922 2.690 2.534 2.421 2.334 2.266 2.211 2.165 2.126 2.092 2.015 1.932 1.887 2.5 5.568 4.182 3.589 3.250 3.026 2.867 2.746 2.651 2.575 2.511 2.458 2.412 2.307 2.195 2.136 1.0 7.562 5.390 4.510 4.018 3.699 3.473 3.304 3.173 3.067 2.999 2.906 2.843 2.700 2.549 2.469 0.5 9.180 6.355 5.239 4.623 4.228 3.949 3.742 3.580 3.450 3.344 3.255 3.179 3.006 2.823 2.727 2.5 1.806 3.355 5.239 4.623 4.228 3.949 3.742 3.580 3.450 3.344 3.255 3.179 3.006 2.823 2.727 2.5 1.806 2.835 2.440 2.226 2.091 1.997 1.927 1.877 1.829 1.793 1.763 1.715 1.662 1.605 1.574 5.0 1.263 1.405 1.325 2.389 2.606 2.449 2.336 2.249 2.180 2.124 2.077 2.038 2.033 1.924 1.839 1.793 2.5 5.424 4.051 3.463 3.126 2.904 2.744 2.624 2.529 2.482 2.388 2.381 2.288 2.182 2.088 2.082 2.082 2.007 1.0 7.314 5.179 4.313 3.828 3.514 3.291 3.124 2.993 2.888 2.801 2.777 2.665 2.522 2.369 2.288 2.00 1.349 1.355 1.359 1.335 1.321 1.303 1.294 1.287 1.269 1.248 1.236 1.00 2.791 2.393 2.177 2.041 1.946 1.875 1.819 1.775 1.738 1.707 1.680 1.657 1.603 1.541 1.882 1.00 2.791 2.393 2.177 2.041 1.946 1.875 1.819 1.775 1.734 2.702 2.16 2.169 2.061 1.944 1.882 1.0 7.077 4.977 4.126 3.649 3.339 3.119 2.953 2.781 2.334 2.259 2.496 2.357 2.198 2.115 2.00 5.645 5.795 4.775 4.795 3.291 3.134 3.008 2.954 2.357 2.390 2.357 2.390 2.390 2.390 2.391 2.391 2.391 2.391 2.391 3.134 2.993 2.892 2.800 2.904 2.372 2.369 2.359 2.390 2.904 2.372 2.369 2.394 2.370 2.312 2.309 2.350 2.390 2.390 2.391		1.0	7.823	5.614	4.7	4.218	3.895	3.667	3.496	3.363	3.256	3.168		3.032	2.889		2.659	2.577
25.0   1.376   1.452   1.443   1.424   1.407   1.392   1.380   1.359   1.351   1.343   1.337   1.321   1.303   1.293   1.00   2.881   2.489   2.276   2.142   2.049   1.980   1.927   1.884   1.849   1.819   1.794   1.773   1.722   1.667   1.688   5.0   4.171   3.316   2.922   2.690   2.534   2.421   2.334   2.266   2.211   2.165   2.126   2.092   2.015   1.932   1.887   2.558   4.182   3.589   3.250   3.026   2.867   2.746   2.651   2.575   2.511   2.458   2.412   2.307   2.195   2.136   1.0   7.562   5.390   4.510   4.018   3.699   3.473   3.304   3.173   3.067   2.992   2.906   2.843   2.700   2.549   2.469   0.5   9.180   6.355   5.239   4.623   4.228   3.949   3.742   3.580   3.450   3.344   3.255   3.179   3.006   2.823   2.727   2.50   1.363   1.435   1.424   1.404   1.386   1.371   1.357   1.345   1.337   1.341   1.371   1.312   1.295   1.276   1.265   1.00   2.835   2.449   2.226   2.904   2.744   2.624   2.229   2.188   2.133   2.137   1.715   1.662   1.605   1.574   2.835   2.444   4.051   3.463   3.126   2.904   2.744   2.624   2.529   2.482   2.388   2.334   2.288   2.182   2.068   2.208		0.5	9.551	6.661	5.519		4.486	4.202	3.991	3.826	3.695	3.587	3.497	3.420	3.246			2.868
100   2.881   2.489   2.276   2.142   2.049   1.980   1.927   1.884   1.849   1.819   1.794   1.773   1.722   1.667   1.688   5.0   4.171   3.316   2.922   2.690   2.534   2.421   2.334   2.266   2.211   2.165   2.105   2.092   2.015   1.932   1.887   2.558   4.182   3.589   3.250   3.026   2.867   2.746   2.651   2.555   2.511   2.458   2.412   2.307   2.195   2.136   1.052   2.390   4.510   4.018   3.699   3.473   3.04   2.545   2.575   2.511   2.458   2.412   2.307   2.195   2.136   1.052   2.380   4.523   4.623   4.228   3.949   3.742   3.580   3.450   3.344   3.255   3.179   3.006   2.823   2.727   2.50   1.363   1.435   1.424   1.404   1.386   1.371   1.357   1.345   1.337   1.319   1.312   1.295   1.276   1.265   1.00   2.835   2.440   2.226   2.091   1.997   1.927   1.873   1.829   1.793   1.737   1.715   1.662   1.605   1.574   2.05   2.444   4.051   3.463   3.126   2.904   2.744   2.624   2.529   2.452   2.388   2.384   2.288   2.803   1.793   2.288   2.283	30	25.0	1.376	1.452	1.443		1.407	1.392	1.380	1.369	1.359	1.351	1.343	1.337	1.321	1.303	1.293	1.282
5.0 4.171 3.316 2.922 2.690 2.534 2.421 2.334 2.266 2.211 2.165 2.126 2.092 2.015 1.932 1.887 2.568 4.182 3.589 3.250 3.026 2.867 2.746 2.651 2.575 2.511 2.458 2.412 2.307 2.195 2.136 1.00 7.562 5.390 4.510 4.018 3.699 3.473 3.304 3.173 3.067 2.999 2.906 2.843 2.700 2.549 2.469 1.00 2.395 5.239 4.623 4.228 3.949 3.742 3.580 3.450 3.344 3.255 3.179 3.006 2.823 2.727 1.00 2.835 2.400 2.226 2.091 1.997 1.927 1.873 1.829 1.793 1.763 1.737 1.715 1.662 1.605 1.574 1.00 2.835 2.400 2.206 2.449 2.336 2.249 2.180 2.124 2.077 2.038 2.003 1.924 1.839 1.793 2.00 2.249 2.180 2.124 2.077 2.038 2.003 1.924 1.839 1.793 2.25 2.424 4.051 3.463 3.126 2.904 2.744 2.624 2.529 2.452 2.388 2.334 2.288 2.182 2.068 2.007 1.0 7.314 5.179 4.313 3.828 3.514 3.291 3.124 2.993 2.888 2.801 2.727 2.665 2.522 2.369 2.288 1.00 2.791 2.393 2.177 2.041 1.946 1.875 1.835 1.323 1.312 1.303 1.294 1.287 1.269 1.248 1.700 2.791 2.393 2.177 2.041 1.946 1.875 1.819 1.775 1.781 1.620 1.041 1.836 1.748 1.700 2.791 2.392 2.343 3.008 2.786 2.627 2.507 2.412 2.334 2.270 2.216 2.169 2.061 1.944 1.882 1.0 7.077 4.977 4.126 3.649 3.339 3.119 2.953 2.718 2.732 2.570 2.387 2.290 2.990 2.991 2.991 2.995 2.781 2.792 2.790 2.902 2.991 2.991 2.991 2.992 2.892 2.791 2.792 2.790 2.902 2.991 2.992 2.991 2.992 2		10.0	2.881	2.489	2.2		2.049	1.980	1.927	1.884	1.849	1.819			1.722	1.667	1.638	1.606
2.5 5.568 4.182 3.589 3.250 3.026 2.867 2.746 2.651 2.575 2.511 2.458 2.412 2.307 2.195 2.136 1.7562 5.390 4.510 4.018 3.699 3.473 3.304 3.173 3.067 2.979 2.906 2.843 2.700 2.549 2.469 0.5 9.180 6.355 5.239 4.623 4.228 3.949 3.742 3.580 3.450 3.344 3.255 3.179 3.006 2.823 2.727 2.50 1.363 1.435 1.424 1.404 1.386 1.371 1.357 1.345 1.327 1.319 1.312 1.295 1.276 1.265 1.00 2.835 2.440 2.226 2.091 1.997 1.927 1.873 1.829 1.793 1.763 1.737 1.715 1.662 1.605 1.574 5.0 4.085 3.232 2.839 2.606 2.449 2.336 2.249 2.180 2.124 2.077 2.038 2.003 1.924 1.839 1.793 2.5 5.424 4.051 3.463 3.126 2.904 2.744 2.624 2.529 2.452 2.388 2.334 2.288 2.182 2.068 2.007 1.0 7.314 5.179 4.313 3.828 3.514 3.291 3.124 2.993 2.888 2.801 2.727 2.665 2.522 2.369 2.288 2.0 1.349 1.419 1.405 1.385 1.366 1.349 1.335 1.323 1.312 1.303 1.294 1.287 1.269 1.248 1.236 1.0 2.791 2.393 2.177 2.041 1.946 1.875 1.819 1.775 1.738 1.707 1.680 1.657 1.603 1.544 1.882 1.0 7.077 4.977 4.126 3.649 3.339 3.119 2.953 2.718 2.632 2.559 2.496 2.352 2.198 2.115 1.0 7.077 4.977 4.126 3.649 3.339 3.119 2.953 2.718 2.632 2.559 2.496 2.3570 2.387 2.290 2.200		5.0	4.171		2.922	2.690		2.421			2.211	2.165			2.015	1.932		1.841
1.0 7.562 5.390 4.510 4.018 3.699 3.473 3.304 3.173 3.067 2.979 2.906 2.843 2.700 2.549 2.469 3.5180 6.355 5.239 4.623 4.228 3.949 3.742 3.580 3.450 3.344 3.255 3.179 3.006 2.823 2.727 2.9180 6.355 5.239 4.623 4.228 3.949 3.742 3.580 3.450 3.344 3.255 3.179 3.006 2.823 2.727 2.91 1.363 1.435 1.424 1.404 1.386 1.371 1.357 1.345 1.335 1.327 1.319 1.312 1.295 1.276 1.265 1.00 2.835 2.440 2.226 2.091 1.997 1.927 1.873 1.829 1.793 1.763 1.737 1.715 1.662 1.605 1.574 2.0 4.085 3.232 2.839 2.606 2.449 2.336 2.249 2.180 2.124 2.077 2.038 2.003 1.924 1.839 1.793 2.5 5.424 4.051 3.463 3.126 2.904 2.744 2.624 2.529 2.452 2.388 2.334 2.288 2.182 2.068 2.007 1.0 7.314 5.179 4.313 3.828 3.514 3.291 3.124 2.993 2.888 2.801 2.727 2.665 2.522 2.369 2.288 2.0 2.88 2.801 2.777 2.665 2.522 2.369 2.288 2.0 2.389 2.317 3.028 2.953 2.781 2.598 2.502 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2		2.5	5.568	4.182	3.5	3.250				2.651	2.575	2.511	2.458		2.307	2.195		
0.5 9.180 6.355 5.239 4.623 4.228 3.949 3.742 3.580 3.450 3.344 3.255 3.179 3.006 2.823 2.727 25.0 1.363 1.435 1.424 1.404 1.386 1.371 1.357 1.345 1.335 1.327 1.319 1.312 1.295 1.276 1.265 1.00 2.835 2.440 2.226 2.091 1.997 1.927 1.873 1.829 1.793 1.763 1.737 1.715 1.662 1.605 1.574 5.0 4.085 3.232 2.839 2.606 2.449 2.336 2.249 2.180 2.124 2.077 2.038 2.003 1.924 1.839 1.793 2.5 5.424 4.051 3.463 3.126 2.904 2.744 2.624 2.529 2.452 2.388 2.334 2.288 2.182 2.068 2.007 1.0 7.314 5.179 4.313 3.828 3.514 3.291 3.124 2.993 2.888 2.801 2.727 2.665 2.522 2.369 2.288 0.5 8.828 6.066 4.976 4.374 3.986 3.713 3.509 3.350 3.222 3.117 3.028 2.953 2.781 2.598 2.502 2.500 1.349 1.419 1.405 1.385 1.366 1.349 1.335 1.321 1.303 1.294 1.287 1.269 1.248 1.236 1.00 2.791 2.393 2.177 2.041 1.946 1.875 1.819 1.775 1.738 1.707 1.680 1.657 1.603 1.543 1.511 5.0 4.001 3.150 2.758 2.525 2.368 2.257 2.367 2.412 2.334 2.270 2.216 2.169 2.061 1.944 1.882 1.0 7.077 4.977 4.977 4.126 3.649 3.339 3.119 2.953 2.738 2.004 2.904 2.817 2.742 2.570 2.387 2.290		1.0	7.562		4.510	4.018		3.473		3.173	3.067	2.979			2.700			2.386
25.0 1.363 1.425 1.424 1.404 1.386 1.371 1.357 1.345 1.335 1.327 1.319 1.312 1.295 1.276 1.265 1.00 2.835 2.440 2.226 2.091 1.997 1.927 1.873 1.829 1.793 1.763 1.737 1.715 1.662 1.605 1.574 5.0 4.085 3.232 2.839 2.606 2.449 2.336 2.249 2.180 2.124 2.077 2.038 2.003 1.924 1.839 1.793 2.5 5.424 4.051 3.463 3.126 2.904 2.744 2.624 2.529 2.452 2.388 2.334 2.288 2.182 2.068 2.007 1.0 7.314 5.179 4.313 3.828 3.514 3.291 3.124 2.993 2.888 2.801 2.727 2.665 2.522 2.369 2.288 0.5 8.828 6.066 4.976 4.374 3.986 3.713 3.509 3.350 3.222 3.117 3.028 2.953 2.781 2.598 2.502 1.349 1.419 1.405 1.385 1.366 1.349 1.335 1.321 1.303 1.294 1.287 1.269 1.248 1.236 1.00 2.791 2.393 2.177 2.041 1.946 1.875 1.819 1.775 1.738 1.707 1.680 1.657 1.603 1.543 1.511 5.0 4.001 3.150 2.758 2.525 2.368 2.254 2.167 2.097 2.040 1.993 1.952 1.917 1.836 1.944 1.882 1.0 7.077 4.977 4.126 3.649 3.339 3.119 2.953 2.718 2.632 2.559 2.496 2.352 2.198 2.115 1.0 7.077 4.977 4.126 3.649 3.339 3.119 2.953 2.314 3.008 2.904 2.817 2.742 2.570 2.387 2.290		0.5	9.180	6.355	5.239		4.228	3.949	3.742		3.450	3.344	3.255	3.179	3.006			2.628
10.0 2.835 2.440 2.226 2.091 1.997 1.927 1.873 1.829 1.763 1.757 1.715 1.662 1.605 1.574 5.0 4.085 3.232 2.839 2.606 2.449 2.336 2.249 2.180 2.124 2.077 2.038 2.003 1.924 1.839 1.793 2.5 5.424 4.051 3.463 3.126 2.904 2.744 2.624 2.529 2.452 2.388 2.334 2.288 2.182 2.068 2.007 1.0 7.314 5.179 4.313 3.828 3.514 3.291 3.124 2.993 2.888 2.801 2.727 2.665 2.522 2.369 2.288 2.8 1.0 7.314 5.179 4.313 3.828 3.514 3.291 3.124 2.993 2.888 2.801 2.727 2.665 2.522 2.369 2.288 2.9 1.349 1.419 1.405 1.385 1.366 1.349 1.335 1.321 1.303 1.294 1.287 1.269 1.248 1.236 1.00 2.791 2.393 2.177 2.041 1.946 1.875 1.819 1.775 1.738 1.707 1.680 1.657 1.603 1.543 1.511 5.0 4.001 3.150 2.758 2.525 2.368 2.254 2.167 2.097 2.040 1.993 1.952 1.917 1.836 1.748 1.700 2.5 5.286 3.925 3.343 3.008 2.786 2.627 2.507 2.412 2.334 2.270 2.216 2.169 2.061 1.944 1.882 1.0 7.077 4.977 4.126 3.649 3.339 3.119 2.953 2.813 2.718 2.632 2.559 2.496 2.352 2.198 2.115 2.5 8.495 5.795 4.729 4.140 3.760 3.492 3.291 3.134 3.008 2.904 2.817 2.742 2.570 2.387 2.290	40	25.0	1.363	1.435	1.424		1.386			ı	1.335	1.327		1.312	1.295	ı		1.253
5.0 4.085 3.232 2.839 2.606 2.449 2.336 2.249 2.180 2.124 2.077 2.038 2.003 1.924 1.839 1.793 2.54 4.051 3.463 3.126 2.904 2.744 2.624 2.529 2.452 2.388 2.334 2.288 2.182 2.068 2.007 1.0 7.314 5.179 4.313 3.828 3.514 3.291 3.124 2.993 2.888 2.801 2.727 2.665 2.522 2.369 2.288 2.50 2.389 2.389 2.34 2.288 2.502 2.369 2.288 2.80 2.317 3.028 2.953 2.781 2.598 2.502 2.30 1.349 1.419 1.405 1.385 1.366 1.349 1.335 1.322 1.312 1.303 1.294 1.287 1.269 1.248 1.236 1.00 2.791 2.393 2.177 2.041 1.946 1.875 1.819 1.775 1.738 1.707 1.680 1.657 1.603 1.543 1.511 5.0 4.001 3.150 2.758 2.525 2.368 2.254 2.167 2.097 2.040 1.993 1.952 1.917 1.836 1.748 1.700 2.5 5.286 3.925 3.343 3.008 2.786 2.627 2.507 2.412 2.334 2.270 2.216 2.169 2.061 1.944 1.882 1.0 7.077 4.977 4.126 3.649 3.339 3.119 2.953 2.823 2.718 2.632 2.559 2.496 2.352 2.198 2.115 2.05 8.495 5.795 4.729 4.140 3.760 3.492 3.291 3.134 3.008 2.904 2.817 2.742 2.570 2.387 2.290		10.0	2.835	2.440	2.226		1.997	1.927	1.873	1.829	1.793	1.763					_	1.541
2.5 5.424 4.051 3.463 3.126 2.904 2.744 2.624 2.529 2.452 2.388 2.334 2.288 2.182 2.068 2.007 1.0 7.314 5.179 4.313 3.828 3.514 3.291 3.124 2.993 2.888 2.801 2.727 2.665 2.522 2.369 2.288 2.88 2.801 2.727 2.665 2.522 2.369 2.288 2.88 2.89 2.801 2.727 2.665 2.522 2.369 2.288 2.89 2.89 2.89 2.801 2.727 2.665 2.522 2.369 2.288 2.80 2.50 2.349 1.349 1.405 1.385 1.366 1.349 1.335 1.323 1.312 1.303 1.294 1.287 1.269 1.248 1.236 1.00 2.791 2.393 2.177 2.041 1.946 1.875 1.819 1.775 1.738 1.707 1.680 1.657 1.603 1.543 1.511 5.0 4.001 3.150 2.758 2.525 2.368 2.254 2.167 2.097 2.040 1.993 1.952 1.917 1.836 1.748 1.700 2.55 5.286 3.925 3.343 3.008 2.786 2.627 2.507 2.412 2.334 2.270 2.216 2.169 2.061 1.944 1.882 1.00 7.077 4.977 4.126 3.649 3.339 3.119 2.953 2.823 2.718 2.632 2.559 2.496 2.352 2.198 2.115 2.05 8.495 5.795 4.729 4.140 3.760 3.492 3.291 3.134 3.008 2.904 2.817 2.742 2.570 2.387 2.290		5.0	4.085	3.232	2.839				2.249		2.124	2.077		2.003	1.924	1.839		1.744
1.0 7.314 5.179 4.313 3.828 3.514 3.291 3.124 2.993 2.888 2.801 2.727 2.665 2.522 2.369 2.288 2.80   0.5 8.828 6.066 4.976 4.374 3.986 3.713 3.509 3.350 3.222 3.117 3.028 2.953 2.781 2.598 2.502   25.0 1.349 1.419 1.405 1.385 1.366 1.349 1.335 1.323 1.312 1.303 1.294 1.287 1.269 1.248 1.236   10.0 2.791 2.393 2.177 2.041 1.946 1.875 1.819 1.775 1.738 1.707 1.680 1.657 1.603 1.543 1.511   5.0 4.001 3.150 2.758 2.525 2.368 2.254 2.167 2.097 2.040 1.993 1.952 1.917 1.836 1.748 1.700   2.5 5.286 3.925 3.343 3.008 2.786 2.627 2.507 2.412 2.334 2.270 2.216 2.169 2.061 1.944 1.882   1.0 7.077 4.977 4.126 3.649 3.339 3.119 2.953 2.823 2.718 2.632 2.559 2.496 2.352 2.198 2.115   0.5 8.495 5.795 4.729 4.140 3.760 3.492 3.291 3.134 3.008 2.904 2.817 2.742 2.570 2.387 2.290		2.5	5.424	4.051	3.463		2.904			2.529	2.452	2.388		2.288	2.182	2.068		1.943
0.5       8.828 6.066 4.976 4.374 3.986 3.713 3.509 3.350 3.222 3.117 3.028 2.953 2.781 2.598 2.502         25.0       1.349 1.419 1.405 1.385 1.366 1.349 1.335 1.321 1.303 1.294 1.287 1.269 1.248 1.236         10.0       2.791 2.393 2.177 2.041 1.946 1.875 1.819 1.775 1.738 1.707 1.680 1.657 1.603 1.543 1.511         5.0       4.001 3.150 2.758 2.525 2.368 2.254 2.167 2.097 2.040 1.993 1.952 1.917 1.836 1.748 1.700         2.5       5.286 3.925 3.343 3.008 2.786 2.627 2.507 2.412 2.334 2.270 2.216 2.169 2.061 1.944 1.882         1.0       7.077 4.977 4.126 3.649 3.339 3.119 2.953 2.823 2.718 2.632 2.559 2.496 2.352 2.198 2.115         0.5       8.495 5.795 4.729 4.140 3.760 3.492 3.291 3.134 3.008 2.904 2.817 2.742 2.570 2.387 2.290		1.0	7.314	5.179	4.313	3.828	3.514	3.291	3.124	2.993	2.888	2.801	2.727	2.665	2.522	2.369		2.203
25.0 1.349 1.419 1.405 1.385 1.366 1.349 1.335 1.323 1.312 1.303 1.294 1.287 1.269 1.248 1.236 1.00 2.791 2.393 2.177 2.041 1.946 1.875 1.819 1.775 1.738 1.707 1.680 1.657 1.603 1.543 1.511 5.0 4.001 3.150 2.758 2.525 2.368 2.254 2.167 2.097 2.040 1.993 1.952 1.917 1.836 1.748 1.700 2.5 5.286 3.925 3.343 3.008 2.786 2.627 2.507 2.412 2.334 2.270 2.216 2.169 2.061 1.944 1.882 1.0 7.077 4.977 4.126 3.649 3.339 3.119 2.953 2.823 2.718 2.632 2.559 2.496 2.352 2.198 2.115 3.05 8.495 5.795 4.729 4.140 3.760 3.492 3.291 3.134 3.008 2.904 2.817 2.742 2.570 2.387 2.290		0.5	8.828	990:9	4.976		3.986	3.713	3.509	3.350	3.222	3.117	3.028	2.953	2.781	2.598		2.401
2.393 2.177 2.041 1.946 1.875 1.819 1.775 1.738 1.707 1.680 1.657 1.603 1.543 1.511 3.150 2.758 2.525 2.368 2.254 2.167 2.097 2.040 1.993 1.952 1.917 1.836 1.748 1.700 3.925 3.343 3.008 2.786 2.627 2.507 2.412 2.334 2.270 2.216 2.169 2.061 1.944 1.882 4.977 4.126 3.649 3.339 3.119 2.953 2.823 2.718 2.632 2.559 2.496 2.352 2.198 2.115 5.795 4.729 4.140 3.760 3.492 3.291 3.134 3.008 2.904 2.817 2.742 2.570 2.387 2.290	09	25.0	1.349	1.419	1.405	1.385	1.366	1.349	1.335	1.323	1.312	1.303	1.294	1.287	1.269	1.248	1	1.223
4.001 3.150 2.758 2.525 2.368 2.254 2.167 2.097 2.040 1.993 1.952 1.917 1.836 1.748 1.700 5.286 3.925 3.343 3.008 2.786 2.627 2.507 2.412 2.334 2.270 2.216 2.169 2.061 1.944 1.882 7.077 4.977 4.126 3.649 3.339 3.119 2.953 2.823 2.718 2.632 2.559 2.496 2.352 2.198 2.115 8.495 5.795 4.729 4.140 3.760 3.492 3.291 3.134 3.008 2.904 2.817 2.742 2.570 2.387 2.290		10.0	2.791	2.393		2.041	1.946	1.875	1.819	1.775	1.738	1.707	1.680		1.603			1.476
5.286 3.925 3.343 3.008 2.786 2.627 2.507 2.412 2.334 2.270 2.216 2.169 2.061 1.944 1.882 7.077 4.977 4.126 3.649 3.339 3.119 2.953 2.823 2.718 2.632 2.559 2.496 2.352 2.198 2.115 8.495 5.795 4.729 4.140 3.760 3.492 3.291 3.134 3.008 2.904 2.817 2.742 2.570 2.387 2.290		5.0	4.001	3.150		2.525			2.167	2.097	2.040	1.993			1.836			1.649
7.077 4.977 4.126 3.649 3.339 3.119 2.953 2.823 2.718 2.632 2.559 2.496 2.352 2.198 2.115 8.495 5.795 4.729 4.140 3.760 3.492 3.291 3.134 3.008 2.904 2.817 2.742 2.570 2.387 2.290		2.5	5.286	3.925	3.343	3.008		2.627	2.507	2.412	2.334	2.270			2.061	1.944		1.815
8.495 5.795 4.729 4.140 3.760 3.492 3.291 3.134 3.008 2.904 2.817 2.742 2.570 2.387 2.290		1.0	7.077				3.339	3.119	2.953	2.823	2.718	2.632				2.198		2.028
		0.5		5.795	4.		3.760	3.492	3.291	3.134	3.008	2.904	2.817	2.742	2.570		2.290	2.187

Tabelle B.12: Quantilen-Tabelle der F-Verteilung

3         4         5         6         7         8         9         10         11         12         15         20           7         1.365         1.345         1.328         1.313         1.300         1.289         1.279         1.270         1.262         1.243         1.220           0         1.992         1.896         1.824         1.767         1.722         1.684         1.652         1.625         1.643         1.250         1.243         1.220           0         1.992         1.896         1.824         1.767         1.722         1.684         1.652         1.625         1.648         1.652         1.625         1.648         1.652         1.652         1.654         1.652         1.652         1.654         1.652         <	$F_{i}$	$F_{n,m}^{\alpha}$								ш	ı							
25.0 1.336 1.402 1.387 1.365 1.345 1.328 1.313 1.300 1.289 1.270 1.262 1.262 1.243 1.220 1.0.0 2.748 2.347 2.130 1.992 1.896 1.824 1.767 1.722 1.684 1.652 1.625 1.601 1.545 1.482 5.0 3.920 3.072 2.680 2.447 2.290 2.175 2.087 2.016 1.959 1.910 1.869 1.834 1.750 1.659 2.5 5.152 3.805 3.227 2.894 2.674 2.515 2.395 2.292 2.25 2.157 2.102 2.055 1.945 1.825 1.0 6.851 4.787 3.949 3.480 3.174 2.956 2.792 2.663 2.559 2.472 2.399 2.336 2.192 2.035 0.5 8.179 5.539 4.497 3.921 3.548 3.285 3.087 2.933 2.808 2.705 2.618 2.544 2.373 2.188 2.50 1.331 1.396 1.380 1.388 1.337 1.319 1.304 1.291 1.279 1.269 1.260 1.252 1.232 1.209 1.0 2.731 2.329 2.111 1.973 1.876 1.804 1.747 1.701 1.663 1.631 1.603 1.579 1.522 1.458 2.5 1.388 3.041 2.660 2.417 2.299 2.144 2.056 1.985 1.927 1.878 1.837 1.801 1.717 1.623 2.5 1.388 3.041 2.660 2.417 2.299 2.144 2.056 1.985 1.927 1.878 1.801 1.717 1.623 2.5 1.00 3.758 3.182 2.850 2.630 2.472 2.351 2.256 2.178 2.113 2.058 2.010 1.900 1.778 1.0 6.763 4.713 3.881 3.444 3.110 2.893 2.730 2.601 2.497 2.411 2.338 2.275 2.129 1.971 0.5 8.057 5.441 4.408 3.837 3.467 3.206 3.010 2.865 2.732 2.629 2.543 2.468 2.297 2.112 2.50 1.328 1.339 1.337 1.334 1.331 1.316 1.209 2.444 2.056 1.2497 2.411 2.338 2.275 2.129 1.944 2.05 1.328 1.339 2.334 3.302 2.244 2.199 1.060 2.244 2.199 1.060 2.244 2.199 1.060 2.247 2.320 2.102 1.964 1.867 1.794 1.737 1.691 1.652 1.620 1.592 1.562 1.504 1.945 2.00 2.244 2.199 2.311 1.862 1.821 1.785 1.703 1.00 2.716 2.313 2.005 2.344 2.313 2.305 2.349 3.338 3.009 2.342 2.350 2.341 2.269 2.571 2.467 2.380 2.307 2.244 2.099 1.940 0.5 7.997 5.393 4.365 3.799 2.329 2.309 2.331 2.271 1.261 1.251 1.251 1.231 1.233 1.338 2.300 2.332 2.347 2.331 2.371 1.261 1.351 1.351 1.351 1.351 1.351 2.391 2.391 2.391 1.351 2.391		$\alpha$ [%]	1	2	3	4	S	9	7	∞	6	10	11	12	15	20	24	30
10.0 2.748 2.347 2.130 1.992 1.896 1.824 1.767 1.722 1.684 1.652 1.625 1.601 1.545 1.482 5.0 3.920 3.072 2.680 2.447 2.290 2.175 2.087 2.016 1.959 1.910 1.869 1.834 1.750 1.659 2.35 2.92 3.072 2.680 2.447 2.290 2.175 2.087 2.016 1.959 1.910 1.869 1.834 1.750 1.659 2.35 2.152 3.805 3.227 2.894 2.674 2.515 2.395 2.299 2.222 2.157 2.102 2.055 1.945 1.825 1.0 6.851 4.787 3.949 3.480 3.174 2.956 2.792 2.663 2.559 2.472 2.399 2.336 2.192 2.035 2.05 1.331 1.396 1.380 1.358 1.337 1.319 1.304 1.291 1.279 1.269 1.260 1.252 1.252 1.209 1.0 6.8179 5.539 4.497 3.921 3.548 3.285 3.087 2.933 2.808 2.705 2.618 2.544 2.373 2.188 2.0 1.331 1.396 1.380 1.358 1.337 1.319 1.304 1.291 1.279 1.269 1.260 1.250 1.252 1.458 2.0 1.388 3.041 2.650 2.417 2.259 2.144 2.056 1.985 1.927 1.878 1.878 1.801 1.717 1.623 2.5 1.00 3.758 3.182 2.850 2.603 2.442 2.055 2.192 2.074 2.056 1.985 1.927 1.878 1.878 1.801 1.717 1.623 2.5 1.00 3.758 3.182 2.850 2.603 2.442 2.056 1.985 1.927 2.113 2.058 2.010 1.900 1.778 1.0 6.763 4.713 3.881 3.414 3.110 2.893 2.730 2.601 2.497 2.411 2.338 2.275 2.129 1.971 1.0 6.763 4.713 3.881 3.414 3.110 2.893 2.730 2.601 2.497 2.411 2.338 2.275 2.129 1.971 1.0 6.763 4.713 3.881 3.444 3.100 2.856 2.732 2.629 2.543 2.468 2.297 2.112 2.300 2.102 1.964 1.867 1.794 1.737 1.691 1.652 1.620 1.592 1.568 1.510 1.445 2.702 2.302 2.102 1.964 1.867 1.794 1.737 1.691 1.682 1.821 1.785 1.795 1.795 1.000 2.794 2.099 1.940 0.5 7.997 5.393 4.365 3.798 3.342 3.079 2.804 2.591 2.30	120	25.0	1.336	1.402	1.387	1.365	1.345	1.328	1.313	1.300	1.289	1.279	1.270	1.262	1.243	1.220	1.207	1.192
5.0 3.920 3.072 2.680 2.447 2.290 2.175 2.087 2.016 1.959 1.910 1.869 1.834 1.750 1.659 2.55 5.152 3.805 3.227 2.894 2.674 2.515 2.395 2.299 2.222 2.157 2.102 2.055 1.945 1.825 1.0 6.851 4.787 3.949 3.480 3.174 2.956 2.792 2.663 2.559 2.472 2.399 2.336 2.192 2.035 0.5 8.179 5.539 4.497 3.921 3.548 3.285 3.087 2.933 2.808 2.705 2.618 2.544 2.373 2.188 2.50 1.331 1.396 1.380 1.358 1.337 1.319 1.304 1.291 1.279 1.269 1.260 1.252 1.232 1.209 10.0 2.731 2.329 2.111 1.973 1.876 1.804 1.747 1.701 1.663 1.631 1.603 1.579 1.522 1.458 5.0 3.888 3.041 2.650 2.417 2.259 2.144 2.056 1.985 1.927 1.878 1.837 1.801 1.717 1.623 2.5 5.100 3.758 3.182 2.850 2.630 2.472 2.351 2.256 2.178 2.113 2.058 2.010 1.900 1.778 1.0 6.763 4.713 3.881 3.414 3.110 2.893 2.730 2.601 2.497 2.411 2.338 2.275 2.129 1.971 0.5 8.057 5.441 4.408 3.837 3.467 3.206 3.010 2.856 2.732 2.629 2.543 2.468 2.297 2.112 2.50 1.328 1.393 1.377 1.354 1.333 1.315 1.300 1.286 1.275 1.264 1.255 1.247 1.227 1.203 1.00 2.722 2.320 2.102 1.964 1.867 1.794 1.737 1.691 1.652 1.620 1.592 1.568 1.510 1.445 5.0 3.873 3.026 2.635 2.440 2.029 2.451 2.330 2.234 2.156 2.091 2.036 1.988 1.877 1.755 1.0 6.720 4.677 3.848 3.382 3.079 2.862 2.699 2.571 2.467 2.380 2.307 2.244 2.099 1.940 0.5 7.997 5.393 4.365 3.796 3.428 3.167 2.248 2.156 2.912 2.380 2.307 2.244 2.099 1.940 0.5 7.997 5.393 4.365 3.796 3.428 3.167 2.972 2.818 2.694 2.592 2.505 2.431 2.260 2.074 2.09 1.940 0.5 7.997 5.393 4.365 3.796 3.428 3.167 2.972 2.818 2.694 2.592 2.505 2.431 2.260 2.074 2.09 1.940 0.5 7.997 5.393 3.205 2.332 2.117 2.292 2.443 2.335 2.207 2.142 2.330 2.232 2.117 2.028 1.957 1.899 1.785 1.295 1.899 1.735 1.296 1.283 2.207 2.144 2.099 1.971 1.859 1.736 1.0 6.686 4.648 3.821 3.357 3.3054 2.838 2.675 2.547 2.443 2.356 2.247 2.442 2.350 2.247 2.443 2.356 2.247 2.442 2.350 2.247 2.491 2.785 2.247 2.443 2.356 2.247 2.441 2.350 2.247 2.441 2.350 2.247 2.441 2.350 2.247 2.441 2.350 2.247 2.441 2.350 2.247 2.441 2.350 2.247 2.441 2.330 2.232 2.444 2.391 2.772 2.330 2.344 2.313 2.217 2.139 2.044 2.052 2.24		10.0	2.748	2.347	2.130	1.992		1.824	1.767	1.722	1.684	1.652	1.625	1.601	1.545	1.482	1.447	1.409
2.5 5.152 3.805 3.227 2.894 2.674 2.515 2.395 2.299 2.222 2.157 2.102 2.055 1.945 1.825 1.0 6.851 4.787 3.949 3.480 3.174 2.956 2.792 2.663 2.559 2.472 2.399 2.336 2.192 2.035 0.5 8.179 5.539 4.497 3.921 3.548 3.285 3.087 2.933 2.808 2.705 2.618 2.544 2.373 2.188 2.50 1.331 1.396 1.380 1.358 1.337 1.319 1.304 1.291 1.279 1.269 1.260 1.252 1.232 1.209 10.0 2.731 2.329 2.111 1.973 1.876 1.804 1.747 1.701 1.663 1.631 1.603 1.579 1.522 1.458 5.0 3.888 3.041 2.650 2.417 2.259 2.144 2.056 1.985 1.927 1.878 1.837 1.801 1.717 1.623 2.5 5.100 3.758 3.182 2.850 2.630 2.472 2.351 2.256 2.178 2.113 2.058 2.010 1.900 1.778 1.0 6.763 4.713 3.881 3.414 3.110 2.893 2.730 2.601 2.497 2.411 2.338 2.275 2.129 1.971 0.5 8.057 5.441 4.408 3.837 3.467 3.206 3.010 2.856 2.732 2.629 2.543 2.468 2.297 2.112 2.50 1.328 1.393 1.377 1.354 1.333 1.315 1.300 1.286 1.275 1.264 1.255 1.247 1.227 1.203 1.00 2.722 2.320 2.102 1.964 1.867 1.794 1.737 1.691 1.652 1.620 1.592 1.568 1.510 1.445 5.0 3.873 3.026 2.693 2.442 2.129 2.040 1.969 1.911 1.862 1.821 1.785 1.700 1.606 2.5 5.075 3.735 3.160 2.829 2.609 2.451 2.330 2.344 2.156 2.091 2.036 1.988 1.877 1.755 1.0 6.720 4.677 3.848 3.382 3.079 2.862 2.699 2.571 2.467 2.380 2.307 2.244 2.099 1.940 0.5 7.997 5.393 4.365 3.796 3.428 3.167 2.972 2.818 2.694 2.592 2.505 2.441 1.351 1.246 1.257 1.246 1.251 1.241 1.251 1.241 1.251 1.241 1.255 1.246 2.330 2.344 2.312 2.320 2.344 2.312 2.320 2.344 2.312 2.320 2.344 2.312 2.320 2.344 2.313 2.320 2.332 2.342 2.		5.0		3.072	2.680		2.290	2.175	2.087	2.016	1.959	1.910	1.869	1.834	1.750	1.659	1.608	1.554
1.0   6.851 4.787 3.949 3.480 3.174 2.956 2.792 2.663 2.559 2.472 2.399 2.336 2.192 2.035 0.5   8.179 5.539 4.497 3.921 3.548 3.285 3.087 2.933 2.808 2.705 2.618 2.544 2.373 2.188 2.50   1.331 1.396 1.380 1.358 1.337 1.319 1.304 1.291 1.279 1.269 1.260 1.262 1.232 1.209 1.00 2.731 2.329 2.111 1.973 1.876 1.804 1.747 1.701 1.663 1.631 1.603 1.579 1.522 1.458 5.0 3.888 3.041 2.650 2.417 2.259 2.144 2.056 1.985 1.927 1.878 1.837 1.801 1.717 1.623 2.5 5.100 3.758 3.182 2.850 2.630 2.472 2.351 2.256 2.178 2.113 2.088 2.010 1.900 1.778 1.0 6.763 4.713 3.881 3.414 3.110 2.893 2.730 2.601 2.497 2.411 2.338 2.257 2.129 1.971 0.5 8.057 5.441 4.408 3.837 3.467 3.206 3.010 2.856 2.732 2.629 2.543 2.468 2.297 2.112 2.00 2.722 2.320 2.102 1.964 1.867 1.794 1.737 1.691 1.652 1.620 1.592 1.568 1.510 1.445 5.0 3.873 3.026 2.635 2.402 2.244 2.129 2.040 1.969 1.911 1.862 1.821 1.785 1.700 1.606 2.5 5.075 3.735 3.160 2.829 2.609 2.451 2.330 2.342 2.156 2.091 2.036 1.988 1.877 1.755 1.0 6.720 4.677 3.848 3.382 3.079 2.862 2.699 2.571 2.467 2.380 2.307 2.244 2.099 1.940 0.5 7.997 5.393 4.365 3.796 3.428 3.167 2.972 2.818 2.694 2.552 2.505 2.431 2.260 2.074 2.50 1.326 1.330 1.374 1.351 1.330 1.312 1.296 1.283 1.271 1.261 1.251 1.243 1.233 1.198 1.0 6.764 3.800 3.014 2.623 2.390 2.232 2.117 2.028 1.957 1.899 1.850 1.808 1.772 1.686 1.595 5.054 4.648 3.821 3.357 2.941 2.789 2.665 2.842 2.562 2.847 2.230 2.044 2.655 2.562 2.847 2.230 2.044 2.655 2.562 2.847 2.330 2.044 2.059 2.300 2.037 2.044 2.039 2.044 2.055 2.265 2.247 2.200 2.034 2.056 2.265 2.247 2.200 2.034 2.030 2.034 2.030 2.034 2.030 2.034 2.035 2.030 2.035 2.030 2.034 2.030 2.034 2.030 2.035 2.030 2.037 2.044 2.039 2.044 2.039 2.047 2.019 1.971 1.859 1.736 2.044 2.050 2.030 2.034 2.030 2.035 2.035 2.035 2.035 2.030 2.034 2.030 2.035 2.035 2.035 2.035 2.030 2.035 2.037 2.044 2.039 2.030 2.037 2.044 2.039 2.030 2.035 2.037 2.044 2.039 2.030 2.035 2.		2.5		3.805		2.894		2.515	2.395	2.299	2.222	2.157	2.102	2.055	1.945	1.825	1.760	1.690
0.5 8.179 5.539 4.497 3.921 3.548 3.285 3.087 2.933 2.808 2.705 2.618 2.544 2.373 2.188 25.0 1.331 1.396 1.380 1.358 1.337 1.319 1.304 1.291 1.279 1.269 1.260 1.252 1.232 1.209 10.0 2.731 2.329 2.111 1.973 1.876 1.804 1.747 1.701 1.663 1.631 1.603 1.579 1.522 1.458 5.0 3.888 3.041 2.650 2.417 2.259 2.144 2.056 1.985 1.927 1.878 1.837 1.801 1.717 1.623 2.5 5.100 3.758 3.182 2.850 2.402 2.472 2.351 2.256 2.178 2.113 2.058 2.010 1.900 1.778 1.0 6.763 4.713 3.881 3.414 3.110 2.893 2.730 2.601 2.497 2.411 2.338 2.275 2.129 1.971 0.5 8.057 5.441 4.408 3.837 3.467 3.206 3.010 2.856 2.732 2.629 2.543 2.468 2.297 2.112 2.50 1.328 1.339 1.377 1.354 1.333 1.315 1.300 1.286 1.275 1.264 1.255 1.247 1.227 1.203 1.0 2.722 2.320 2.102 1.964 1.867 1.794 1.737 1.691 1.652 1.620 1.592 1.568 1.510 1.606 2.5 5.075 3.735 3.160 2.862 2.699 2.541 2.467 2.380 2.307 2.244 2.099 1.940 0.5 7.997 5.393 4.365 3.796 3.428 3.167 2.972 2.818 2.694 2.592 2.505 2.431 2.260 2.074 2.50 1.326 1.330 1.374 1.351 1.330 1.312 1.296 1.281 2.694 2.592 2.505 2.431 2.260 2.074 2.50 1.326 1.390 1.374 1.351 1.330 1.312 1.296 1.281 1.612 1.583 1.559 1.501 1.435 5.0 3.860 3.014 2.623 2.390 2.232 2.117 2.028 1.957 1.899 1.856 1.808 1.772 1.686 1.592 2.556 2.476 2.476 2.402 2.330 2.044 2.89 2.547 2.442 2.335 2.250 2.074 2.091 1.971 1.859 1.736 1.0 6.868 4.648 3.821 3.357 3.054 2.838 2.675 2.547 2.442 2.356 2.476 2.402 2.330 2.044		1.0	6.851	4.787	3.949	3.480		2.956	2.792		2.559	2.472	2.399	2.336	2.192	2.035	1.950	1.860
25.0 1.331 1.396 1.380 1.358 1.337 1.319 1.304 1.291 1.279 1.260 1.260 1.252 1.232 1.209 1.00 2.731 2.329 2.111 1.973 1.876 1.804 1.747 1.701 1.663 1.631 1.603 1.579 1.522 1.458 5.0 3.888 3.041 2.650 2.417 2.259 2.144 2.056 1.985 1.927 1.878 1.837 1.801 1.717 1.623 2.5 5.100 3.758 3.182 2.850 2.442 2.056 1.985 1.927 1.878 1.837 1.801 1.717 1.623 2.5 5.100 3.758 3.182 2.850 2.442 2.056 2.472 2.351 2.256 2.178 2.113 2.058 2.010 1.900 1.778 1.0 6.763 4.713 3.881 3.414 3.110 2.893 2.730 2.601 2.497 2.411 2.338 2.275 2.129 1.971 0.5 8.057 5.441 4.408 3.837 3.467 3.206 3.010 2.856 2.732 2.629 2.543 2.468 2.297 2.112 2.0 1.328 1.393 1.377 1.354 1.333 1.315 1.300 1.286 1.275 1.264 1.255 1.247 1.257 1.203 1.00 2.722 2.320 2.102 1.964 1.867 1.794 1.737 1.691 1.652 1.620 1.592 1.568 1.510 1.405 2.0 3.873 3.026 2.635 2.402 2.424 2.129 2.040 1.969 1.911 1.862 1.821 1.785 1.700 1.606 2.5 5.075 3.735 3.160 2.862 2.699 2.571 2.467 2.380 2.307 2.244 2.099 1.940 0.5 7.997 5.393 4.365 3.796 2.428 3.167 2.972 2.818 2.694 2.592 2.505 2.431 2.260 2.074 2.0 1.328 1.331 2.095 1.956 1.889 1.772 1.683 1.559 1.501 1.435 5.0 3.860 3.014 2.623 2.390 2.232 2.117 2.028 1.957 1.899 1.850 1.851 1.859 1.735 1.0 6.886 4.648 3.821 3.357 3.054 2.838 2.675 2.547 2.443 2.356 2.243 2.230 2.044 2.915 1.0 6.868 4.648 3.821 3.357 3.996 3.137 2.941 2.789 2.665 2.562 2.476 2.402 2.230 2.044		0.5	8.179	5.539	4.49	3.921	3.548	3.285	3.087	2.933	2.808	2.705	2.618	2.544	2.373	2.188	2.089	1.984
10.0 2.731 2.329 2.111 1.973 1.876 1.804 1.747 1.701 1.663 1.631 1.603 1.579 1.522 1.458 5.0 3.888 3.041 2.650 2.417 2.259 2.144 2.056 1.985 1.927 1.878 1.837 1.801 1.717 1.623 2.5 5.100 3.758 3.182 2.850 2.630 2.472 2.351 2.256 2.178 2.113 2.058 2.010 1.900 1.778 1.0 6.763 4.713 3.881 3.414 3.110 2.893 2.730 2.601 2.497 2.411 2.338 2.275 2.129 1.971 0.5 8.057 5.441 4.408 3.837 3.467 3.206 3.010 2.856 2.732 2.629 2.543 2.468 2.297 2.112 2.50 1.328 1.337 1.354 1.333 1.315 1.300 1.286 1.275 1.264 1.255 1.247 1.227 1.203 1.00 2.722 2.320 2.102 1.964 1.867 1.794 1.737 1.691 1.652 1.620 1.592 1.568 1.510 1.445 2.0 3.873 3.026 2.635 2.402 2.244 2.129 2.040 1.969 1.911 1.862 1.821 1.785 1.700 1.606 2.5 5.075 3.735 3.160 2.829 2.609 2.451 2.330 2.34 2.156 2.091 2.036 1.988 1.877 1.755 1.0 6.720 4.677 3.848 3.382 3.079 2.862 2.699 2.571 2.467 2.380 2.307 2.244 2.099 1.940 0.5 7.997 5.393 4.365 3.796 3.428 3.167 2.972 2.818 2.694 2.592 2.505 2.431 2.260 2.074 2.00 1.300 1.312 1.296 1.283 1.271 1.261 1.251 1.243 1.223 1.198 1.00 2.716 2.313 2.095 1.956 1.889 1.786 1.729 1.683 1.674 1.612 1.883 1.559 1.501 1.859 1.736 1.00 2.716 2.312 2.390 2.232 2.117 2.028 1.957 1.899 1.850 1.801 1.357 1.859 1.736 1.916 6.868 4.648 3.821 3.357 3.054 2.838 2.675 2.547 2.443 2.356 2.240 2.230 2.044 2.795 2.300 2.232 2.177 2.941 2.789 2.665 2.562 2.476 2.402 2.230 2.044	200	25.0	1.331	1.396	1.38	1.358		1.319	1.304	1.291	1.279	1.269	1.260	1.252	1.232	1.209	1.195	1.179
5.0 3.888 3.041 2.650 2.417 2.259 2.144 2.056 1.985 1.927 1.878 1.837 1.801 1.717 1.623 2.5 5.100 3.758 3.182 2.850 2.630 2.472 2.351 2.256 2.178 2.113 2.058 2.010 1.900 1.778 1.0 6.763 4.713 3.881 3.414 3.110 2.893 2.730 2.601 2.497 2.411 2.338 2.275 2.129 1.971 0.5 8.057 5.441 4.408 3.837 3.467 3.206 3.010 2.856 2.732 2.629 2.543 2.468 2.297 2.112 2.0 1.328 1.393 1.377 1.354 1.333 1.315 1.300 1.286 1.275 1.264 1.255 1.247 1.227 1.203 1.0 2.722 2.320 2.102 1.964 1.867 1.794 1.737 1.691 1.652 1.620 1.592 1.568 1.510 1.445 2.0 3.873 3.026 2.635 2.402 2.244 2.129 2.040 1.969 1.911 1.862 1.821 1.785 1.700 1.606 2.5 5.075 3.735 3.160 2.829 2.609 2.571 2.467 2.380 2.307 2.244 2.099 1.940 0.5 7.997 5.393 4.365 3.796 3.428 3.167 2.972 2.818 2.694 2.592 2.505 2.431 2.260 2.074 2.010 2.716 2.313 2.095 1.956 1.859 1.786 1.729 1.683 1.644 1.612 1.583 1.559 1.501 1.435 2.05 3.860 3.014 2.623 2.390 2.232 2.117 2.028 1.957 1.899 1.850 1.809 1.971 1.859 1.736 1.686 4.648 3.821 3.357 3.054 2.838 2.675 2.547 2.443 2.356 2.247 2.402 2.230 2.044 2.955 2.250 2.247 2.202 2.044 2.951 2.950 2.377 2.445 2.390 2.230 2.044 2.952 2.250 2.247 2.230 2.044		10.0	2.731	2.329		1.973		1.804	1.747	1.701	1.663	1.631	1.603	1.579	1.522	1.458	1.422	1.383
2.5 5.100 3.758 3.182 2.850 2.630 2.472 2.351 2.256 2.178 2.113 2.058 2.010 1.900 1.778 1.0 6.763 4.713 3.881 3.414 3.110 2.893 2.730 2.601 2.497 2.411 2.338 2.275 2.129 1.971 0.5 8.057 5.441 4.408 3.837 3.467 3.206 3.010 2.856 2.732 2.629 2.543 2.468 2.297 2.112 2.50 1.328 1.393 1.377 1.354 1.333 1.315 1.300 1.286 1.275 1.264 1.255 1.247 1.227 1.203 1.00 2.722 2.320 2.102 1.964 1.867 1.794 1.737 1.691 1.652 1.620 1.592 1.568 1.510 1.445 2.00 2.722 2.320 2.102 2.244 2.129 2.040 1.969 1.911 1.862 1.821 1.785 1.700 1.606 2.5 5.075 3.735 3.160 2.829 2.609 2.451 2.330 2.234 2.156 2.091 2.036 1.988 1.877 1.755 1.0 6.720 4.677 3.848 3.382 3.079 2.862 2.699 2.571 2.467 2.380 2.307 2.244 2.099 1.940 0.5 7.997 5.393 4.365 3.796 3.428 3.167 2.972 2.818 2.694 2.592 2.505 2.431 2.260 2.074 2.09 1.300 1.374 1.351 1.330 1.312 1.296 1.283 1.671 1.261 1.251 1.243 1.223 1.198 1.00 2.716 2.313 2.095 1.956 1.859 1.786 1.729 1.681 1.612 1.583 1.559 1.501 1.435 2.054 3.860 3.014 2.623 2.390 2.332 2.117 2.028 1.957 1.899 1.850 1.801 1.859 1.736 1.915 1.06 6.868 4.648 3.821 3.357 3.054 2.838 2.675 2.562 2.476 2.402 2.230 2.044 2.055 2.30 2.044		5.0	3.888	3.041	2.65	2.417		2.144	2.056	1.985	1.927	1.878	1.837	1.801	1.717	1.623	1.572	1.516
1.0 6.763 4.713 3.881 3.414 3.110 2.893 2.730 2.601 2.497 2.411 2.338 2.275 2.129 1.971 0.5 8.057 5.441 4.408 3.837 3.467 3.206 3.010 2.856 2.732 2.629 2.543 2.468 2.297 2.112 2.5.0 1.328 1.393 1.377 1.354 1.333 1.315 1.300 1.286 1.275 1.264 1.255 1.247 1.227 1.203 1.00 2.722 2.320 2.102 1.964 1.867 1.794 1.737 1.691 1.652 1.620 1.592 1.568 1.510 1.445 2.0 2.722 2.320 2.102 1.964 1.867 1.794 1.737 1.691 1.652 1.620 1.592 1.568 1.510 1.445 2.0 2.772 2.330 2.102 2.244 2.129 2.040 1.969 1.911 1.862 1.821 1.785 1.700 1.606 2.5 5.075 3.735 3.160 2.829 2.609 2.451 2.330 2.234 2.156 2.091 2.036 1.988 1.877 1.755 1.0 6.720 4.677 3.848 3.382 3.079 2.862 2.699 2.571 2.467 2.380 2.307 2.244 2.099 1.940 0.5 7.997 5.393 4.365 3.796 3.428 3.167 2.972 2.818 2.694 2.592 2.505 2.431 2.260 2.074 2.00 1.326 1.390 1.374 1.351 1.330 1.312 1.296 1.283 1.271 1.261 1.251 1.243 1.223 1.198 1.00 2.716 2.313 2.095 1.956 1.859 1.786 1.729 1.683 1.687 1.899 1.808 1.772 1.686 1.592 2.554 3.716 3.142 2.811 2.592 2.434 2.313 2.217 2.139 2.074 2.019 1.971 1.859 1.736 0.5 7.950 5.355 4.330 3.763 3.396 3.137 2.941 2.789 2.665 2.562 2.476 2.402 2.230 2.044		2.5		3.758	3.182	2.850		2.472	2.351	2.256	2.178	2.113	2.058	2.010	1.900	1.778	1.712	1.640
0.5 8.057 5.441 4.408 3.837 3.467 3.206 3.010 2.856 2.732 2.629 2.543 2.468 2.297 2.112 25.0 1.328 1.339 1.377 1.354 1.333 1.315 1.300 1.286 1.275 1.264 1.255 1.247 1.227 1.203 1.00 2.722 2.320 2.102 1.964 1.867 1.794 1.737 1.691 1.652 1.620 1.592 1.568 1.510 1.445 5.0 3.873 3.026 2.635 2.402 2.244 2.129 2.040 1.969 1.911 1.862 1.821 1.785 1.700 1.606 2.5 5.075 3.735 3.160 2.829 2.609 2.451 2.330 2.234 2.156 2.091 2.036 1.988 1.877 1.755 1.0 6.720 4.677 3.848 3.382 3.079 2.862 2.699 2.571 2.467 2.380 2.307 2.244 2.099 1.940 0.5 7.997 5.393 4.365 3.796 3.428 3.167 2.972 2.818 2.694 2.592 2.505 2.431 2.260 2.074 2.00 1.00 2.716 2.313 2.095 1.956 1.859 1.786 1.729 1.683 1.674 1.612 1.583 1.559 1.501 1.435 5.0 3.860 3.014 2.623 2.390 2.232 2.117 2.028 1.957 1.899 1.850 1.808 1.772 1.686 1.592 2.5 5.054 3.716 3.142 2.811 2.592 2.434 2.313 2.217 2.139 2.074 2.019 1.971 1.859 1.736 0.5 7.950 5.355 4.330 3.763 3.396 3.137 2.941 2.789 2.665 2.562 2.476 2.402 2.230 2.044		1.0		4.713	3.881	3.414		2.893	2.730		2.497	2.411	2.338		2.129	1.971	1.886	1.794
25.0 1.328 1.393 1.377 1.354 1.333 1.315 1.300 1.286 1.275 1.264 1.255 1.247 1.227 1.203 10.0 2.722 2.320 2.102 1.964 1.867 1.794 1.737 1.691 1.652 1.620 1.592 1.568 1.510 1.445 5.0 3.873 3.026 2.635 2.402 2.244 2.129 2.040 1.969 1.911 1.862 1.821 1.785 1.700 1.606 2.5 5.075 3.735 3.160 2.829 2.609 2.451 2.330 2.234 2.156 2.091 2.036 1.988 1.877 1.755 1.0 6.720 4.677 3.848 3.382 3.079 2.862 2.699 2.571 2.467 2.380 2.307 2.244 2.099 1.940 0.5 7.997 5.393 4.365 3.796 3.428 3.167 2.972 2.818 2.694 2.592 2.505 2.431 2.260 2.074 25.0 1.326 1.390 1.374 1.351 1.330 1.312 1.296 1.283 1.271 1.261 1.251 1.243 1.223 1.198 10.0 2.716 2.313 2.095 1.956 1.859 1.786 1.729 1.683 1.644 1.612 1.583 1.559 1.501 1.435 5.0 3.860 3.014 2.623 2.390 2.232 2.117 2.028 1.957 1.899 1.850 1.808 1.772 1.686 1.592 2.5 5.054 3.716 3.142 2.811 2.592 2.434 2.313 2.217 2.139 2.074 2.019 1.971 1.859 1.736 1.0 6.886 4.648 3.821 3.357 3.054 2.838 2.675 2.547 2.443 2.356 2.283 2.220 2.075 1.915 0.5 7.950 5.355 4.330 3.763 3.396 3.137 2.941 2.789 2.665 2.562 2.476 2.402 2.230 2.044		0.5		5.441	4.408	3.837		3.206	3.010			2.629	2.543	2.468	2.297	2.112	2.012	1.905
10.0 2.722 2.320 2.102 1.964 1.867 1.794 1.737 1.691 1.652 1.620 1.592 1.568 1.510 1.445  5.0 3.873 3.026 2.635 2.402 2.244 2.129 2.040 1.969 1.911 1.862 1.821 1.785 1.700 1.606  2.5 5.075 3.735 3.160 2.829 2.609 2.451 2.330 2.234 2.156 2.091 2.036 1.988 1.877 1.755  1.0 6.720 4.677 3.848 3.382 3.079 2.862 2.699 2.571 2.467 2.380 2.307 2.244 2.099 1.940  0.5 7.997 5.393 4.365 3.796 3.428 3.167 2.972 2.818 2.694 2.592 2.505 2.431 2.260 2.074  25.0 1.326 1.390 1.374 1.351 1.330 1.312 1.296 1.283 1.271 1.261 1.251 1.243 1.223 1.198  10.0 2.716 2.313 2.095 1.956 1.885 1.786 1.729 1.683 1.644 1.612 1.583 1.559 1.501 1.435  5.0 3.860 3.014 2.623 2.390 2.232 2.117 2.028 1.957 1.899 1.850 1.808 1.772 1.686 1.592  2.5 5.054 3.716 3.142 2.811 2.592 2.434 2.313 2.217 2.139 2.074 2.019 1.971 1.859 1.736  1.0 6.866 4.648 3.821 3.357 3.054 2.838 2.675 2.547 2.443 2.356 2.283 2.220 2.075 1.915  0.5 7.950 5.355 4.330 3.763 3.396 3.137 2.941 2.789 2.665 2.562 2.476 2.402 2.230 2.044	300	25.0	1.328	1.393	1.377	1.354		1.315	1.300	1.286	1.275	1.264	1.255	1.247	1.227	1.203	1.189	1.173
5.0 3.873 3.026 2.635 2.402 2.244 2.129 2.040 1.969 1.911 1.862 1.821 1.785 1.700 1.606 2.55 5.075 3.735 3.160 2.829 2.609 2.451 2.330 2.234 2.156 2.091 2.036 1.988 1.877 1.755 1.0 6.720 4.677 3.848 3.382 3.079 2.862 2.699 2.571 2.467 2.380 2.307 2.244 2.099 1.940 0.5 7.997 5.393 4.365 3.796 3.428 3.167 2.972 2.818 2.694 2.592 2.505 2.431 2.260 2.074 2.00 1.326 1.390 1.374 1.351 1.330 1.312 1.296 1.283 1.271 1.261 1.251 1.243 1.223 1.198 1.00 2.716 2.313 2.095 1.956 1.859 1.786 1.729 1.683 1.644 1.612 1.583 1.559 1.501 1.435 2.0 3.860 3.014 2.623 2.390 2.232 2.117 2.028 1.957 1.899 1.850 1.808 1.772 1.686 1.592 2.55 5.054 3.716 3.142 2.811 2.592 2.434 2.313 2.217 2.139 2.074 2.019 1.971 1.859 1.736 1.0 6.686 4.648 3.821 3.357 3.054 2.838 2.675 2.547 2.443 2.356 2.283 2.220 2.075 1.915 0.5 7.950 5.355 4.330 3.763 3.396 3.137 2.941 2.789 2.665 2.562 2.476 2.402 2.230 2.044		10.0	2.722	2.320	2.102	1.964		1.794	1.737	1.691	1.652	1.620	1.592	1.568	1.510	1.445	1.409	1.369
2.5 5.075 3.735 3.160 2.829 2.609 2.451 2.330 2.234 2.156 2.091 2.036 1.988 1.877 1.755 1.0 6.720 4.677 3.848 3.382 3.079 2.862 2.699 2.571 2.467 2.380 2.307 2.244 2.099 1.940 0.5 7.997 5.393 4.365 3.796 3.428 3.167 2.972 2.818 2.694 2.592 2.505 2.431 2.260 2.074 2.50 1.326 1.390 1.374 1.351 1.330 1.312 1.296 1.283 1.271 1.261 1.251 1.243 1.223 1.198 10.0 2.716 2.313 2.095 1.956 1.859 1.786 1.729 1.683 1.644 1.612 1.583 1.559 1.501 1.435 5.0 3.860 3.014 2.623 2.390 2.232 2.117 2.028 1.957 1.899 1.850 1.808 1.772 1.686 1.592 2.5 5.054 3.716 3.142 2.811 2.592 2.434 2.313 2.217 2.139 2.074 2.019 1.971 1.859 1.736 1.0 6.686 4.648 3.821 3.357 3.054 2.838 2.675 2.547 2.443 2.356 2.283 2.220 2.075 1.915 0.5 7.950 5.355 4.330 3.763 3.396 3.137 2.941 2.789 2.665 2.562 2.476 2.402 2.230 2.044		5.0		3.026	2.63	2.402		2.129	2.040	1.969	1.911	1.862	1.821	1.785	1.700	1.606	1.554	1.497
1.0 6.720 4.677 3.848 3.382 3.079 2.862 2.699 2.571 2.467 2.380 2.307 2.244 2.099 1.940 0.5 7.997 5.393 4.365 3.796 3.428 3.167 2.972 2.818 2.694 2.592 2.505 2.431 2.260 2.074 2.50 1.326 1.390 1.374 1.351 1.330 1.312 1.296 1.283 1.271 1.261 1.251 1.243 1.223 1.198 10.0 2.716 2.313 2.095 1.956 1.859 1.786 1.729 1.683 1.644 1.612 1.583 1.559 1.501 1.435 2.0 3.860 3.014 2.623 2.390 2.232 2.117 2.028 1.957 1.899 1.850 1.808 1.772 1.686 1.592 2.5 5.054 3.716 3.142 2.811 2.592 2.434 2.313 2.217 2.139 2.074 2.019 1.971 1.859 1.736 1.0 6.686 4.648 3.821 3.357 3.054 2.838 2.675 2.547 2.443 2.356 2.283 2.220 2.075 1.915 0.5 7.950 5.355 4.330 3.763 3.396 3.137 2.941 2.789 2.665 2.562 2.476 2.402 2.230 2.044		2.5	5.075	3.735	3.16	2.829		2.451		2.234	2.156	2.091	2.036	1.988	1.877	1.755	1.688	1.616
0.5 7.997 5.393 4.365 3.796 3.428 3.167 2.972 2.818 2.694 2.592 2.505 2.431 2.260 2.074  25.0 1.326 1.390 1.374 1.351 1.330 1.312 1.296 1.283 1.271 1.261 1.251 1.243 1.223 1.198  10.0 2.716 2.313 2.095 1.956 1.859 1.786 1.729 1.683 1.644 1.612 1.583 1.559 1.501 1.435  5.0 3.860 3.014 2.623 2.390 2.232 2.117 2.028 1.957 1.899 1.850 1.808 1.772 1.686 1.592  2.5 5.054 3.716 3.142 2.811 2.592 2.434 2.313 2.217 2.139 2.074 2.019 1.971 1.859 1.736  1.0 6.686 4.648 3.821 3.357 3.054 2.838 2.675 2.547 2.443 2.356 2.283 2.220 2.075 1.915  0.5 7.950 5.355 4.330 3.763 3.396 3.137 2.941 2.789 2.665 2.562 2.476 2.402 2.230 2.044		1.0	6.720	4.677	3.848	3.382		2.862			2.467	2.380	2.307		2.099	1.940	1.854	1.761
25.0 1.326 1.390 1.374 1.351 1.330 1.312 1.296 1.283 1.271 1.261 1.251 1.243 1.223 1.198 10.0 2.716 2.313 2.095 1.956 1.859 1.786 1.729 1.683 1.644 1.612 1.583 1.559 1.501 1.435 5.0 3.860 3.014 2.623 2.390 2.232 2.117 2.028 1.957 1.899 1.850 1.808 1.772 1.686 1.592 2.5 5.054 3.716 3.142 2.811 2.592 2.434 2.313 2.217 2.139 2.074 2.019 1.971 1.859 1.736 1.0 6.686 4.648 3.821 3.357 3.054 2.838 2.675 2.547 2.443 2.356 2.283 2.220 2.075 1.915 0.5 7.950 5.355 4.330 3.763 3.396 3.137 2.941 2.789 2.665 2.562 2.476 2.402 2.230 2.044		0.5	7.997	5.393	4.36	3.796		3.167	2.972	2.818		2.592	2.505	2.431	2.260	2.074	1.973	1.866
5 1.956 1.859 1.786 1.729 1.683 1.644 1.612 1.583 1.559 1.501 1.435 3 2.390 2.232 2.117 2.028 1.957 1.899 1.850 1.808 1.772 1.686 1.592 2 2.811 2.592 2.434 2.313 2.217 2.139 2.074 2.019 1.971 1.859 1.736 1 3.357 3.054 2.838 2.675 2.547 2.443 2.356 2.283 2.220 2.075 1.915 0 3.763 3.396 3.137 2.941 2.789 2.665 2.562 2.476 2.402 2.230 2.044	200	25.0	1.326	1.390	1.374	1.351	1.330	1.312	1.296	1.283	1.271	1.261	1.251	1.243	1.223	1.198	1.184	1.168
3.860 3.014 2.623 2.390 2.232 2.117 2.028 1.957 1.899 1.850 1.808 1.772 1.686 1.592 5.054 3.716 3.142 2.811 2.592 2.434 2.313 2.217 2.139 2.074 2.019 1.971 1.859 1.736 6.686 4.648 3.821 3.357 3.054 2.838 2.675 2.547 2.443 2.356 2.283 2.220 2.075 1.915 7.950 5.355 4.330 3.763 3.396 3.137 2.941 2.789 2.665 2.562 2.476 2.402 2.230 2.044		10.0	2.716	2.313		1.956		1.786	1.729	1.683	1.644	1.612	1.583	1.559	1.501	1.435	1.399	1.358
5.054 3.716 3.142 2.811 2.592 2.434 2.313 2.217 2.139 2.074 2.019 1.971 1.859 1.736 6.686 4.648 3.821 3.357 3.054 2.838 2.675 2.547 2.443 2.356 2.283 2.220 2.075 1.915 7.950 5.355 4.330 3.763 3.396 3.137 2.941 2.789 2.665 2.562 2.476 2.402 2.230 2.044		5.0		3.014	2.62	2.390		2.117	2.028	1.957	1.899	1.850	1.808	1.772	1.686	1.592	1.539	1.482
6.686 4.648 3.821 3.357 3.054 2.838 2.675 2.547 2.443 2.356 2.283 2.220 2.075 1.915 7.950 5.355 4.330 3.763 3.396 3.137 2.941 2.789 2.665 2.562 2.476 2.402 2.230 2.044		2.5		3.716	3.142	2.811	2.592	2.434	2.313	2.217	2.139	2.074	2.019	1.971	1.859	1.736	1.669	1.596
7.950 5.355 4.330 3.763 3.396 3.137 2.941 2.789 2.665 2.562 2.476 2.402 2.230 2.044		1.0	989.9	4.648	3.821	3.357		2.838	2.675	2.547	2.443	2.356	2.283	2.220	2.075	1.915	1.829	1.735
		0.5	7.950	5.355	4.330	3.763		3.137	2.941		2.665	2.562	2.476	2.402	2.230	2.044	1.943	1.835

Tabelle B.13: Quantilen-Tabelle der F-Verteilung