

UNIVERSITI SAINS MALAYSIA

Peperiksaan Semester Pertama
Sidang Akademik 1995/96

Oktober/November 1995

SKW100 - Kaedah-Kaedah Kuantitatif

Masa : [3 Jam]

Sila pastikan bahawa kertas peperiksaan ini mengandungi **TIGA** muka surat yang bercetak manakala dari muka surat 4 - 22 mengandungi formula dan jadual sebelum anda memulakan peperiksaan ini.

Jawab **SEMUA** soalan dalam **Bahagian A** dan **DUA (2)** soalan lagi dari **Bahagian B**.

BAHAGIAN A

Soalan ini **WAJIB** bagi semua calon.

Soalan 1

- (a) Data berikut menunjukkan kaitan antara baja kimia dalam kilogram sehektar (X) dan hasil kacang tanah dalam kilogram (Y). Hitungkan nilai a, b dan r^2 bagi persamaan anggaran $\hat{Y} = a + bX$, dengan menggunakan kaedah persamaan normal dan kaedah pendek. Tunjukkan dengan jelas hitungan anda menggunakan kedua-dua kaedah.

X_i Kg/Hektar	Y_i Kg/Hektar
10	1000
20	2000
30	2500
40	3000
50	3200
60	3500
70	3700
80	3800
90	3850

(20 markah)

2/-

- (b) Dari data berikut, hitungkan sisihan piawai dengan menggunakan kaedah biasa, kaedah purata agak tanpa koda dan purata agak dengan koda. Carikan juga $\bar{X}$, $\tilde{X}$ dan $\hat{X}$. Buat tafsiran bagi $\bar{X}$, $\tilde{X}$, $\hat{X}$, s dan s_x .

Kelas	Sempadan Kelas	fi
1	9.5 - 21.5	30
2	21.5 - 33.5	70
3	33.5 - 45.5	120
4	45.5 - 57.5	130
5	57.5 - 69.5	110
6	69.5 - 81.5	40
7	81.5 - 93.5	0
n = 500		

(30 markah)

Bahagian B

Pilih mana-mana **DUA** (2) soalan sahaja.

Soalan 2

Data nominal dan ordinal, jika dianalisis melalui pendekatan statistiks parametrik akan menghasilkan penemuan yang mengelirukan, manakala penggunaan kaedah statistiks bukan parametrik akan mengurangkan penggunaan data bentuk jeda dan nisbah yang telah dikutip. Jumlah pengamatan yang besar perlu untuk kaedah statistiks parametrik. Tetapi data yang besar perlu diurus dan dikelaskan sebelum analisis. Bincangkan isu-isu ini dengan menggunakan contoh dan rajah-rajah yang sesuai.

(25 markah)

Soalan 3

Saudara telah dilantik menjadi perunding kepada satu projek penyelidikan bagi menilai kesan sosioekonomi projek KLIA Sepang, khususnya bagi menilai pendapat penduduk setempat mengenai projek tersebut. Dengan memberikan penjelasan kepada definisi hipotesis, masalah, kaedah penyelidikan, populasi, sampel dan analisis regresi, tunjukkan secara teoritis dan hipotetik bagaimana masalah sosioekonomi demikian boleh dikaji.

(25 markah)

Soalan 4

Alam sebenar adalah amat kompleks dan mengandungi banyak pembolehubah. Malah manusia di dalam alam sebenar menghadapi banyak masalah yang masih belum selesai dan kian bertambah. Walaupun begitu, penyelidik yang terlatih perlu menyelesaikan masalah dan mencari dasar dan program awam, melalui proses abstraksi dan memilih pembolehubah penting daripada pembolehubah-pembolehubah yang banyak itu. Pengamatan dibuat melalui ciri-ciri individu dalam masyarakat. Dengan rajah-rajah tertentu, bincangkan proses pemilihan sampel dan pembolehubah yang berkaitan dengan masalah-masalah yang disebutkan.

(25 markah)

Soalan 5

Sebagai seorang penyelidik muda anda diminta menasihati Pegawai Daerah mengenai cara menyelesaikan masalah-masalah sosial di daerah Baling, Kedah. Anda diminta memberi ulasan dan perbezaan di antara perkara-perkara berikut:

- (a) Ujian Z, ujian t dan ujian F.
- (b) Taburan normal, keserongan, ujian t satu hujung dan t dua hujung.
- (c) Kaedah statistiks parametrik dan bukan parametrik.
- (d) Sukatan data nominal, ordinal, jeda dan nisbah.
- (e) Hipotesis, hipotesis Nol (H_0) dan hipotesis alternatif.

Bincangkan perkara-perkara di atas melalui satu tulisan esei yang ringkas dan TEPAT. Anda diminta menunjukkan rajah-rajah dan memberikan contoh-contoh hipotetik untuk menjelaskan konsep-konsep di atas kepada tuan Pegawai Daerah berkenaan.

(25 markah)

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SKW 100 : KAEDAH-KAEDAH KUANTITATIF

FORMULA

PANDUAN MENJAWAB

$$1. \quad \bar{X} = \frac{\sum_{i=1}^n X}{n}$$

$$2. \quad s = \sqrt{\frac{\sum x_i^2}{n-1}}$$

$$3. \quad s_{\bar{X}} = \frac{s}{\sqrt{n}} = \sqrt{\frac{\sum x_i^2}{n(n-1)}}$$

$$4. \quad \sum x_i^2 = \sum X^2 - \frac{(\sum X)^2}{n}$$

$$5. \quad k = 1 + 3.3 \log n$$

$$6. \quad c = i = \frac{\text{julat}}{k} + 1$$

$$7. \quad \bar{X} = \frac{\sum_{i=1}^k f_i m_i}{\sum_{i=1}^k f_i} \quad d_i = M_i - A$$

$$8. \quad \bar{X} = A + \frac{c}{n} \left(\sum_{i=1}^k f_i u_i \right) ; u_i = \frac{m_i - A}{c}$$

$$9. \quad \bar{X} = L + \left(\frac{n}{2} - F \right) \frac{c}{f} = L + \left(\frac{\frac{n}{2} - F}{f} \right) c$$

$$10. \hat{X} = L + \frac{cd_1}{d_1 + d_2}$$

$$11. \bar{X} = A + \frac{1}{n} \left(\sum_{i=1}^k f_i d_i \right)$$

$$12. Q_1 = L + \left(\frac{n}{4} - F \right) \frac{c}{f}$$

$$13. Q_3 = L + \left\{ \frac{n}{4} (3) - F \right\} \frac{c}{f}$$

$$14. s = \sqrt{\frac{1}{n} \sum_{i=1}^k f_i (m_i - \bar{X})^2}$$

$$15. s = \sqrt{\frac{1}{n} \sum_{i=1}^k f_i d_i^2 - \left(\frac{1}{n} \sum_{i=1}^k f_i d_i \right)^2}$$

$$16. s = c \sqrt{\frac{1}{n} \sum_{i=1}^k f_i u_i^2 - \left(\frac{1}{n} \sum_{i=1}^k f_i u_i \right)^2}$$

17) Persamaan normal adalah:

$$na + b \sum X = \sum Y \quad (1)$$

$$a \sum X + b \sum X^2 = \sum XY \quad (2)$$

$$18) \quad na + b \sum x = \sum y \quad (1)$$

$$a \sum x + b \sum x^2 = \sum xy \quad (2)$$

$$19. \quad b = \frac{\sum xy}{\sum x^2}$$

$$20. \quad a = \bar{Y} - b\bar{X}$$

$$21. \quad \sum x^2 = \sum X^2 - \frac{(\sum X)^2}{n}$$

$$22. \quad \sum Y^2 = \sum Y^2 - \frac{(\sum Y)^2}{n}$$

$$23. \quad \sum xy = \sum XY - \frac{(\sum X)(\sum Y)}{n}$$

$$24. \quad r^2 = \frac{(\sum xy)^2}{(\sum x^2)(\sum y^2)}$$

$$25. \quad \sum d^2 = \sum Y^2 - \sum \hat{Y}^2$$

26. Matrik

$$B = \bar{X}^{-1}Y_i$$

B = parameter yang belum diketahui

$$X^{-1} = \frac{X_{ji}}{1 \times 1} = \text{matrik } X \text{ songsang.}$$

Y = Nilai di set matrik Y.

X_{yi} = Matrik transposisi kosfaktor.

$$27. \quad na + b_1 \Sigma X_1 + b_2 \Sigma X_2 = \Sigma Y_i \quad (1)$$

$$a \Sigma X_1 + b_1 \Sigma X_1^2 + b_2 \Sigma X_1 X_2 = \Sigma X_1 Y_i \quad (2)$$

$$a \Sigma X_2 + b_1 \Sigma X_1 X_2 + b_2 \Sigma X_2^2 = \Sigma X_2 Y_i \quad (3)$$

$$28. \quad b_1 \Sigma x_1^2 + b_2 \Sigma x_1 x_2 = \Sigma x_1 y_i \quad (1)$$

$$b_1 \Sigma x_1 x_2 + b_2 \Sigma x_2^2 = \Sigma x_2 y_i \quad (2)$$

dimana:

$$\Sigma X_1^2 = \Sigma x_1^2 - \frac{(\Sigma X_1)^2}{n}$$

$$\Sigma X_2^2 = \Sigma x_2^2 - \frac{(\Sigma X_2)^2}{n}$$

$$\Sigma X_1 X_2 = \Sigma x_1 x_2 - \frac{\Sigma X_1 \Sigma X_2}{n}$$

$$\Sigma X_1 Y_i = \Sigma x_1 y_i - \frac{\Sigma X_1 \Sigma Y_i}{n}$$

$$\Sigma X_2 Y_i = \Sigma x_2 y_i - \frac{\Sigma X_2 \Sigma Y_i}{n}$$

$$\text{Jika } \hat{Y} = a + b_1 X_1 + b_2 X_2$$

$$a = \bar{Y} - b_1 \bar{X}_1 - b_2 \bar{X}_2$$

jika $\hat{Y} = a + b_1X_1 - b_2X_2$

$a = a - b_1X_1 + b_2X_2$

Jika $\hat{Y} = a - b_1X_1 - b_2X_2$

$a = a + b_1X_1 + b_2X_2$

Jika $\hat{Y} = a - b_1X_1 + b_2X_2$

$a = \bar{Y} + b_1X_1 - b_2X_2$

29. $r_{1Y} = \frac{\sum (X_1 - \bar{X}_1) (Y_i - \bar{Y})}{\sqrt{\sum (X_1 - \bar{X}_1)^2 \sum (Y_i - \bar{Y})^2}}$

30. $r_{2Y} = \frac{\sum (X_2 - \bar{X}_2) (Y_i - \bar{Y})}{\sqrt{\sum (X_2 - \bar{X}_2)^2 \sum (Y_i - \bar{Y})^2}}$

31. $t = \frac{\bar{X} - U}{s_X}$

32. $Z = \frac{X_i - \bar{X}}{s}$

33. $C.I = \bar{X} + s_{\bar{X}} t_{.05}$

$$34. \quad CV = \frac{s}{\bar{x}}$$

$$35. \quad \binom{N}{n} = NC_n = \frac{N!}{n! (N - n)!}$$

$$36. \quad s_E = \sqrt{\frac{\sum (Y - \hat{Y})^2}{n - 2}} = \sqrt{\frac{\sum d^2}{n - 2}}$$

$$s_b = \frac{s_E}{\sum x_i^2}$$

$$37. \quad t \text{ untuk } b = t = \frac{b - B}{s_b}$$

$$\text{C.I untuk } B = b + s_b t_{pr}$$

$$38. \quad s_{\bar{X}} - \bar{X} = \sqrt{\frac{\sum x_1^2 + \sum x_2^2}{n(n - 1)}}$$

$$s_{\bar{X}} - \bar{X} = \sqrt{\frac{(\sum x_1^2 + \sum x_2^2)(n_1 + n_2)}{n_1 n_2 (n_1 + n_2 - 2)}}$$

$$39. \quad t = \frac{\bar{X}_1 - \bar{X}_2}{s_{\bar{X}_1 - \bar{X}_2}}$$

$$C.I. = (\bar{X}_1 - \bar{X}_2) \pm t_{\alpha} s_{\bar{X}_1 - \bar{X}_2}$$

$$40. \quad s_X = \sqrt{\frac{\sum x^2}{n(n-1)}}$$

$$t = \frac{\bar{X}}{s_{\bar{X}}} = \frac{\bar{X} - U_D}{s_{\bar{X}}}$$

$$D = X = X_1 - X_2$$

$$41. \quad F = \frac{s_A^2}{s_W^2}$$

$$s_{\bar{X}}^2 = \frac{\sum x^2}{K - 1}$$

$$s_A^2 = s_{\bar{X}}^2 n$$

$$s_W^2 = \frac{\sum x_1^2 + \sum x_2^2 + \sum x_3^2}{N - k}$$

$$\text{di mana } \sum x_1^2 = \sum (X_1 - \bar{X}_1)^2; \text{ d.f. } n_1 - 1$$

$$\sum x_2^2 = \sum (X_2 - \bar{X}_2)^2; \text{ d.f. } n_2 - 1$$

$$\sum x_3^2 = \sum (X_3 - \bar{X}_3)^2; \text{ d.f. } n_3 - 1$$

$$42. \quad \sum X_T^2 = \sum X^2 - \frac{T^2}{N}$$

di mana :

$T = \sum X$ yaitu jumlah bagi semua X_i

$N = n_1 + n_2 + n_3 + n_4 \dots + n_k$

$k =$ jumlah kumpulan untuk dibandingkan

$$43. \quad \sum X_A^2 = \frac{\sum T_i^2}{n_i} - \frac{T^2}{N}$$

di mana :

$T_i = \sum X_1 + \sum X_2 + \sum X_3 = \dots, X_k$

$n_i = n_1, n_2 \dots n_k$

Jadual 13.1: Jadual Normal - Jadual Z.

z/0	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
0.0	.0000	.0040	.0080	.0120	.0160	.0199	.0239	.0279	.0319	.0359
0.1	.0398	.0438	.0478	.0517	.0557	.0596	.0636	.0675	.0714	.0753
0.2	.0793	.0832	.0871	.0910	.0948	.0987	.1026	.1064	.1103	.1141
0.3	.1179	.1217	.1255	.1293	.1331	.1368	.1406	.1443	.1480	.1517
0.4	.1554	.1591	.1628	.1664	.1700	.1736	.1772	.1808	.1844	.1879
0.5	.1915	.1950	.1985	.2019	.2054	.2088	.2123	.2157	.2190	.2224
0.6	.2257	.2291	.2324	.2357	.2389	.2422	.2454	.2486	.2517	.2549
0.7	.2580	.2611	.2642	.2673	.2704	.2734	.2764	.2794	.2823	.2852
0.8	.2881	.2910	.2939	.2967	.2995	.3023	.3051	.3078	.3106	.3133
0.9	.3159	.3186	.3212	.3238	.3264	.3289	.3315	.3340	.3365	.3389
1.0	.3413	.3438	.3461	.3485	.3508	.3531	.3554	.3577	.3599	.3621
1.1	.3643	.3665	.3686	.3708	.3729	.3749	.3770	.3790	.3810	.3830
1.2	.3849	.3869	.3888	.3907	.3925	.3944	.3962	.3980	.3997	.4015
1.3	.4032	.4049	.4066	.4082	.4099	.4115	.4131	.4147	.4162	.4177
1.4	.4192	.4207	.4222	.4236	.4251	.4265	.4279	.4292	.4306	.4319
1.5	.4332	.4345	.4357	.4370	.4382	.4394	.4406	.4418	.4429	.4441
1.6	.4452	.4463	.4474	.4484	.4495	.4505	.4515	.4525	.4535	.4545
1.7	.4554	.4564	.4573	.4582	.4591	.4599	.4608	.4616	.4625	.4633
1.8	.4641	.4649	.4656	.4664	.4671	.4678	.4686	.4693	.4699	.4706
1.9	.4713	.4719	.4726	.4732	.4738	.4744	.4750	.4756	.4761	.4767
2.0	.4772	.4778	.4783	.4788	.4793	.4798	.4803	.4808	.4812	.4817
2.1	.4821	.4826	.4830	.4834	.4838	.4842	.4846	.4850	.4854	.4857
2.2	.4861	.4864	.4868	.4871	.4875	.4878	.4881	.4884	.4887	.4890
2.3	.4893	.4896	.4898	.4901	.4904	.4906	.4909	.4911	.4913	.4916
2.4	.4918	.4920	.4922	.4925	.4927	.4929	.4931	.4932	.4934	.4936
2.5	.4938	.4940	.4941	.4943	.4945	.4946	.4948	.4949	.4951	.4952
2.6	.4953	.4955	.4956	.4957	.4959	.4960	.4961	.4962	.4963	.4964
2.7	.4965	.4966	.4967	.4968	.4969	.4970	.4971	.4972	.4973	.4974
2.8	.4974	.4975	.4976	.4977	.4977	.4978	.4979	.4979	.4980	.4981
2.9	.4981	.4982	.4982	.4983	.4984	.4984	.4985	.4985	.4986	.4986
3.0	.49865	.4987	.4987	.4988	.4988	.4989	.4989	.4989	.4990	.4990
3.1	.49903	.4991	.4991	.4991	.4992	.4992	.4992	.4992	.4993	.4993
3.2	.4993129									
3.3	.4995166									
3.4	.4996631									
3.5	.4997674									
3.6	.4998409									
3.7	.4998922									
3.8	.4999277									
3.9	.4999519									
4.0	.4999683									
4.5	.4999966									
5.0	.4999997131									

Jadual 13.2: Kawasan di bawah keluk normal, (CARA II)

z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
3.4	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0002
3.3	0.0005	0.0005	0.0005	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0003
3.2	0.0007	0.0007	0.0006	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005
3.1	0.0010	0.0009	0.0009	0.0009	0.0008	0.0008	0.0008	0.0008	0.0007	0.0007
3.0	0.0013	0.0013	0.0013	0.0012	0.0012	0.0011	0.0011	0.0011	0.0010	0.0010
2.9	0.0019	0.0018	0.0017	0.0017	0.0016	0.0016	0.0015	0.0015	0.0014	0.0014
2.8	0.0026	0.0025	0.0024	0.0023	0.0023	0.0022	0.0021	0.0021	0.0020	0.0019
2.7	0.0035	0.0034	0.0033	0.0032	0.0031	0.0030	0.0029	0.0028	0.0027	0.0026
2.6	0.0047	0.0045	0.0044	0.0043	0.0041	0.0040	0.0039	0.0038	0.0037	0.0036
2.5	0.0062	0.0060	0.0059	0.0057	0.0055	0.0054	0.0052	0.0051	0.0049	0.0048
2.4	0.0082	0.0080	0.0078	0.0075	0.0073	0.0071	0.0069	0.0068	0.0066	0.0064
2.3	0.0107	0.0104	0.0102	0.0099	0.0096	0.0094	0.0091	0.0089	0.0087	0.0084
2.2	0.0139	0.0136	0.0132	0.0129	0.0125	0.0122	0.0119	0.0116	0.0113	0.0110
2.1	0.0179	0.0174	0.0170	0.0166	0.0162	0.0158	0.0154	0.0150	0.0146	0.0143
2.0	0.0228	0.0222	0.0217	0.0212	0.0207	0.0202	0.0197	0.0192	0.0188	0.0183
1.9	0.0287	0.0281	0.0274	0.0268	0.0262	0.0256	0.0250	0.0244	0.0239	0.0233
1.8	0.0359	0.0352	0.0344	0.0336	0.0329	0.0322	0.0314	0.0307	0.0301	0.0294
1.7	0.0446	0.0436	0.0427	0.0418	0.0409	0.0401	0.0392	0.0384	0.0375	0.0367
1.6	0.0548	0.0537	0.0526	0.0516	0.0505	0.0495	0.0485	0.0475	0.0465	0.0455
1.5	0.0668	0.0655	0.0643	0.0630	0.0618	0.0606	0.0594	0.0582	0.0571	0.0559
1.4	0.0808	0.0793	0.0778	0.0764	0.0749	0.0735	0.0722	0.0708	0.0694	0.0681
1.3	0.0968	0.0951	0.0934	0.0918	0.0901	0.0885	0.0869	0.0853	0.0838	0.0823
1.2	0.1151	0.1131	0.1112	0.1093	0.1075	0.1056	0.1038	0.1020	0.1003	0.0985
1.1	0.1357	0.1335	0.1314	0.1292	0.1271	0.1251	0.1230	0.1210	0.1190	0.1170
1.0	0.1587	0.1562	0.1539	0.1515	0.1492	0.1469	0.1446	0.1423	0.1401	0.1379
0.9	0.1841	0.1811	0.1788	0.1762	0.1736	0.1711	0.1685	0.1660	0.1635	0.1611
0.8	0.2119	0.2090	0.2061	0.2033	0.2005	0.1977	0.1949	0.1922	0.1894	0.1867
0.7	0.2420	0.2389	0.2358	0.2327	0.2296	0.2266	0.2236	0.2206	0.2177	0.2148
0.6	0.2743	0.2709	0.2676	0.2643	0.2611	0.2576	0.2546	0.2514	0.2483	0.2451
0.5	0.3085	0.3050	0.3015	0.2981	0.2946	0.2912	0.2877	0.2843	0.2810	0.2776
0.4	0.3446	0.3409	0.3372	0.3336	0.3300	0.3264	0.3228	0.3192	0.3156	0.3121
0.3	0.3821	0.3783	0.3745	0.3707	0.3669	0.3632	0.3594	0.3557	0.3520	0.3483
0.2	0.4207	0.4168	0.4129	0.4090	0.4052	0.4013	0.3974	0.3936	0.3897	0.3859
0.1	0.4602	0.4562	0.4522	0.4483	0.4443	0.4404	0.4364	0.4325	0.4286	0.4247
0.0	0.5000	0.4960	0.4920	0.4880	0.4840	0.4801	0.4761	0.4721	0.4681	0.4641
-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	0.6701	0.6736	0.6772	0.6808	0.6844	0.6879

Jadual 13.2: (Sambungan)

z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
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	0.7708	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	0.9278	0.9292	0.9306	0.9319
1.5	0.9332	0.9357	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	0.9410	0.9649	0.9656	0.9666	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	0.9799	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	0.9879	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	0.9959	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
3.1	0.9999	0.9991	0.9991	0.9991	0.9992	0.9992	0.9992	0.9992	0.9993	0.9993
3.2	0.9993	0.9993	0.9994	0.9994	0.9994	0.9994	0.9994	0.9995	0.9995	0.9995
3.3	0.9995	0.9999	0.9995	0.9996	0.9996	0.9996	0.9996	0.9996	0.9996	0.9997
3.4	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9998

Sumber: Ronald F. Walpole, *Introduction to Statistics*, The Macmillan Company 1964 m.s. 332

Jadual 16.1: Jadual Taburan F dengan nilai-nilai $H_0: \mu_1 = \mu_2 = \dots = \mu_k$
(5% temp hantar kanan dan 1% temp hantar sebelah)

n_2	n_1 darjah kebebasan (untuk anggaran varians yang lebih besar)																						n_2		
	1	2	3	4	5	6	7	8	9	10	11	12	14	16	20	24	30	40	50	75	100	200		500	∞
1	161	200	216	225	230	234	237	239	241	242	243	244	245	246	248	249	250	251	252	253	253	254	254	254	254
2	4.052	4.999	5.403	5.625	5.764	5.859	5.928	5.981	6.022	6.056	6.082	6.106	6.124	6.149	6.208	6.234	6.258	6.286	6.302	6.323	6.334	6.352	6.361	6.366	
3	18.51	19.00	19.16	19.25	19.30	19.33	19.36	19.37	19.38	19.39	19.40	19.41	19.42	19.43	19.44	19.45	19.46	19.47	19.47	19.48	19.49	19.49	19.50	19.50	
4	98.49	99.00	99.17	99.25	99.30	99.33	99.34	99.36	99.38	99.40	99.41	99.42	99.43	99.44	99.45	99.46	99.47	99.48	99.48	99.49	99.49	99.49	99.50	99.50	
5	10.13	9.55	9.28	9.12	9.01	8.94	8.88	8.84	8.81	8.78	8.76	8.74	8.71	8.69	8.66	8.64	8.62	8.60	8.58	8.57	8.56	8.54	8.54	8.53	
6	34.12	30.82	29.46	28.91	28.24	27.91	27.67	27.49	27.34	27.23	27.13	27.05	26.92	26.83	26.69	26.60	26.50	26.41	25.35	26.27	26.23	26.18	26.14	26.12	
7	7.71	6.94	6.39	6.29	6.26	6.16	6.09	6.04	6.00	5.96	5.93	5.91	5.87	5.84	5.80	5.77	5.74	5.71	5.70	5.68	5.66	5.65	5.64	5.63	
8	21.20	18.00	16.69	15.96	15.53	15.21	14.98	14.80	14.66	14.54	14.45	14.37	14.24	14.15	14.02	13.93	13.83	13.74	13.69	13.61	13.57	13.52	13.48	13.46	
9	6.61	5.79	5.41	5.19	5.05	4.95	4.88	4.82	4.78	4.74	4.70	4.68	4.64	4.60	4.56	4.53	4.50	4.46	4.44	4.42	4.40	4.38	4.37	4.36	
10	16.26	13.27	12.06	11.39	10.97	10.67	10.45	10.27	10.15	10.05	9.96	9.89	9.77	9.68	9.55	9.47	9.38	9.29	9.24	9.17	9.13	9.07	9.04	9.02	
11	5.99	5.14	4.76	4.53	4.39	4.28	4.21	4.15	4.10	4.06	4.03	4.00	3.96	3.92	3.87	3.84	3.81	3.77	3.75	3.72	3.71	3.69	3.68	3.67	
12	13.74	10.92	9.96	9.15	8.75	8.47	8.26	8.10	7.98	7.87	7.79	7.72	7.60	7.52	7.39	7.31	7.23	7.14	7.09	7.02	6.99	6.94	6.90	6.88	
13	5.59	4.74	4.35	4.12	3.97	3.87	3.79	3.73	3.68	3.63	3.60	3.57	3.52	3.49	3.44	3.41	3.38	3.34	3.32	3.29	3.28	3.25	3.24	3.23	
14	12.25	9.55	8.45	7.85	7.46	7.19	7.00	6.84	6.71	6.62	6.54	6.47	6.35	6.27	6.15	6.07	5.98	5.90	5.85	5.78	5.75	5.70	5.67	5.65	
15	5.32	4.46	4.07	3.84	3.69	3.58	3.50	3.44	3.39	3.34	3.31	3.28	3.23	3.20	3.15	3.12	3.08	3.05	3.03	3.00	2.98	2.96	2.94	2.93	
16	11.26	8.65	7.59	7.01	6.63	6.37	6.19	6.03	5.91	5.82	5.74	5.67	5.56	5.48	5.36	5.28	5.20	5.11	5.06	5.00	4.96	4.91	4.88	4.86	
17	5.12	4.26	3.86	3.63	3.48	3.37	3.29	3.23	3.18	3.13	3.10	3.07	3.02	2.98	2.93	2.90	2.86	2.82	2.80	2.77	2.76	2.73	2.72	2.71	
18	10.56	8.09	6.92	6.36	6.06	5.80	5.62	5.47	5.35	5.26	5.18	5.11	5.00	4.92	4.80	4.73	4.64	4.56	4.51	4.45	4.41	4.36	4.33	4.31	

1% Keeratan 5% Keeratan

Jadual 16.1 (lanjutan)

n_2	n_1 darjah kebebasan (untuk anggaran varians yang lebih besar)																								n_2
	1	2	3	4	5	6	7	8	9	10	11	12	14	16	20	24	30	40	50	75	100	200	500	∞	
10	4.90	4.10	3.71	3.48	3.31	3.22	3.14	3.07	3.02	2.97	2.94	2.91	2.86	2.82	2.77	2.74	2.70	2.67	2.64	2.61	2.59	2.56	2.55	2.54	10
11	10.04	7.56	6.55	5.99	5.64	5.39	5.21	5.06	4.95	4.85	4.78	4.71	4.60	4.52	4.41	4.33	4.25	4.17	4.12	4.05	4.01	3.96	3.93	3.91	11
12	9.65	7.20	6.22	5.67	5.32	5.07	4.88	4.74	4.63	4.54	4.46	4.40	4.29	4.21	4.10	4.02	3.94	3.86	3.80	3.74	3.70	3.66	3.62	3.60	12
13	9.33	6.93	5.95	5.41	5.06	4.82	4.63	4.50	4.39	4.30	4.22	4.16	4.05	3.96	3.86	3.78	3.70	3.61	3.56	3.49	3.46	3.41	3.38	3.36	13
14	9.07	6.70	5.74	5.20	4.86	4.62	4.44	4.30	4.19	4.10	4.02	3.96	3.85	3.76	3.67	3.59	3.51	3.42	3.37	3.30	3.27	3.21	3.18	3.16	14
15	8.86	6.51	5.56	5.03	4.69	4.46	4.28	4.14	4.03	3.94	3.86	3.80	3.70	3.62	3.51	3.43	3.34	3.26	3.21	3.14	3.11	3.06	3.02	3.00	15
16	8.68	6.36	5.42	4.89	4.56	4.32	4.14	4.00	3.89	3.80	3.73	3.67	3.56	3.48	3.36	3.29	3.20	3.12	3.07	3.00	2.97	2.92	2.89	2.87	16
17	8.51	6.23	5.29	4.77	4.44	4.20	4.03	3.89	3.78	3.69	3.61	3.55	3.45	3.37	3.25	3.18	3.10	3.01	2.96	2.89	2.86	2.80	2.77	2.75	17
18	8.38	6.11	5.18	4.67	4.34	4.10	3.93	3.79	3.68	3.59	3.52	3.45	3.35	3.27	3.16	3.08	3.00	2.92	2.86	2.79	2.76	2.70	2.67	2.65	18
19	8.28	6.01	5.09	4.58	4.25	4.01	3.85	3.71	3.60	3.51	3.44	3.37	3.27	3.19	3.07	3.00	2.91	2.83	2.78	2.71	2.68	2.62	2.59	2.57	19
20	8.18	5.91	5.01	4.50	4.17	3.94	3.77	3.63	3.52	3.43	3.36	3.30	3.19	3.12	3.00	2.92	2.84	2.76	2.70	2.63	2.60	2.54	2.51	2.49	20
21	8.10	5.85	4.94	4.43	4.10	3.87	3.71	3.56	3.45	3.37	3.30	3.23	3.13	3.05	2.94	2.86	2.77	2.69	2.63	2.56	2.53	2.47	2.44	2.42	21
22	8.02	5.78	4.87	4.37	4.04	3.81	3.65	3.51	3.40	3.31	3.24	3.17	3.07	2.99	2.88	2.80	2.72	2.63	2.58	2.51	2.47	2.42	2.38	2.36	22
23	7.94	5.72	4.82	4.31	3.99	3.76	3.59	3.45	3.35	3.26	3.18	3.12	3.02	2.94	2.83	2.75	2.67	2.58	2.53	2.46	2.42	2.37	2.33	2.31	23
24	7.88	5.66	4.76	4.26	3.94	3.71	3.54	3.41	3.30	3.21	3.14	3.07	2.97	2.89	2.78	2.70	2.62	2.53	2.48	2.41	2.37	2.32	2.28	2.26	24
25	7.82	5.61	4.72	4.22	3.90	3.67	3.50	3.36	3.25	3.17	3.09	3.03	2.93	2.85	2.74	2.66	2.58	2.49	2.44	2.36	2.33	2.27	2.23	2.21	25
26	7.77	5.57	4.68	4.18	3.86	3.63	3.46	3.32	3.21	3.13	3.05	2.99	2.89	2.81	2.70	2.62	2.54	2.45	2.40	2.32	2.29	2.23	2.19	2.17	26
27	7.72	5.51	4.64	4.14	3.82	3.59	3.42	3.29	3.17	3.09	3.02	2.96	2.86	2.77	2.66	2.58	2.50	2.41	2.36	2.28	2.25	2.19	2.15	2.13	27

Source: Methods Of Statistical Analysis in Economics and Business, Edward E. Ure, Jr., Houghton Mifflin Company, Boston; Edisi Kedua, 1963, Amerika Syarikat, Muka surat 770-773

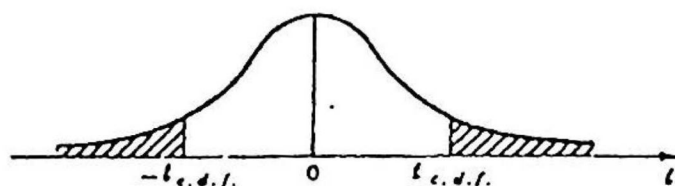
Jadual 16.1: (mamburung)

n ₁	n ₂ darjah kebebasan (untuk anggaran varians yang lebih besar)																	n
	1	2	3	4	5	6	7	8	9	10	11	12	14	16	20	24	30	
27	4.21	3.35	2.96	2.73	2.57	2.46	2.37	2.30	2.25	2.20	2.16	2.13	2.08	2.03	1.97	1.93	1.88	27
28	7.66	5.49	4.60	4.11	3.79	3.56	3.39	3.26	3.14	3.06	2.98	2.93	2.83	2.74	2.63	2.55	2.47	28
29	4.20	3.34	2.95	2.71	2.56	2.44	2.36	2.29	2.24	2.19	2.15	2.12	2.06	2.02	1.96	1.91	1.87	29
30	7.64	5.45	4.57	4.07	3.76	3.53	3.36	3.23	3.11	3.03	2.95	2.90	2.80	2.71	2.60	2.52	2.44	30
31	4.18	3.33	2.93	2.70	2.54	2.43	2.35	2.28	2.22	2.18	2.14	2.10	2.05	2.00	1.94	1.90	1.85	31
32	7.60	5.42	4.54	4.04	3.73	3.50	3.33	3.20	3.08	3.00	2.92	2.87	2.77	2.68	2.57	2.49	2.41	32
33	4.17	3.32	2.92	2.69	2.53	2.42	2.34	2.27	2.21	2.16	2.12	2.09	2.04	1.99	1.93	1.89	1.84	33
34	7.56	5.39	4.51	4.02	3.70	3.47	3.30	3.17	3.06	2.98	2.90	2.84	2.74	2.66	2.55	2.47	2.38	34
35	4.15	3.30	2.90	2.67	2.51	2.40	2.32	2.25	2.19	2.14	2.10	2.07	2.02	1.97	1.91	1.86	1.82	35
36	7.50	5.34	4.46	3.97	3.66	3.42	3.25	3.12	3.01	2.94	2.86	2.80	2.70	2.62	2.51	2.42	2.34	36
37	4.13	3.28	2.88	2.65	2.49	2.38	2.30	2.23	2.17	2.12	2.08	2.05	2.00	1.95	1.89	1.84	1.80	37
38	7.44	5.29	4.42	3.93	3.61	3.38	3.21	3.08	2.97	2.89	2.82	2.76	2.66	2.58	2.47	2.38	2.30	38
39	4.11	3.26	2.86	2.63	2.48	2.36	2.28	2.21	2.15	2.10	2.06	2.03	1.98	1.93	1.87	1.82	1.78	39
40	7.39	5.25	4.38	3.89	3.58	3.35	3.18	3.04	2.94	2.86	2.78	2.72	2.62	2.54	2.43	2.35	2.26	40
41	4.10	3.25	2.85	2.62	2.46	2.35	2.26	2.19	2.14	2.09	2.05	2.02	1.96	1.92	1.85	1.80	1.76	41
42	7.35	5.21	4.34	3.86	3.54	3.32	3.15	3.02	2.91	2.82	2.75	2.69	2.59	2.51	2.40	2.32	2.22	42
43	4.08	3.23	2.84	2.61	2.45	2.34	2.25	2.18	2.12	2.07	2.04	2.00	1.95	1.90	1.84	1.79	1.74	43
44	7.31	5.18	4.31	3.83	3.51	3.29	3.12	2.99	2.88	2.80	2.73	2.66	2.56	2.49	2.37	2.29	2.20	44
45	4.07	3.22	2.83	2.59	2.44	2.32	2.24	2.17	2.11	2.06	2.02	1.99	1.94	1.89	1.82	1.78	1.73	45
46	7.27	5.15	4.29	3.80	3.49	3.26	3.10	2.96	2.86	2.77	2.70	2.64	2.54	2.46	2.35	2.26	2.17	46
47	4.06	3.21	2.82	2.58	2.43	2.31	2.23	2.16	2.10	2.05	2.01	1.98	1.92	1.88	1.81	1.76	1.72	47
48	7.24	5.12	4.26	3.78	3.46	3.24	3.07	2.94	2.84	2.75	2.68	2.62	2.52	2.44	2.32	2.24	2.15	48
49	4.05	3.20	2.81	2.57	2.42	2.30	2.22	2.14	2.09	2.04	2.00	1.97	1.91	1.87	1.80	1.75	1.71	49
50	7.21	5.10	4.24	3.76	3.44	3.22	3.05	2.92	2.82	2.73	2.66	2.60	2.50	2.42	2.30	2.22	2.13	50
51	4.04	3.19	2.80	2.56	2.41	2.30	2.21	2.14	2.08	2.03	1.99	1.96	1.90	1.86	1.79	1.74	1.70	51
52	7.19	5.08	4.22	3.74	3.42	3.20	3.04	2.90	2.80	2.71	2.64	2.58	2.48	2.40	2.28	2.20	2.11	52

Jadual 16.1: (teruskan)

n_1	n_2 darjah kebebasan (untuk anggaran varians yang lebih besar)																				n_2
	1	2	3	4	5	6	7	8	9	10	11	12	14	15	20	24	30	40	50	75	
50	4.03	3.18	2.79	2.56	2.40	2.29	2.20	2.13	2.07	2.02	1.98	1.95	1.90	1.85	1.78	1.74	1.69	1.63	1.60	1.55	500
55	3.17	2.50	2.20	2.00	1.88	1.80	1.74	1.68	1.63	1.59	1.55	1.52	1.48	1.44	1.39	1.35	1.30	1.26	1.22	1.19	550
60	2.76	2.27	2.00	1.80	1.68	1.60	1.54	1.48	1.43	1.39	1.35	1.32	1.28	1.24	1.19	1.15	1.10	1.06	1.02	1.00	600
65	2.52	2.10	1.85	1.65	1.53	1.45	1.39	1.33	1.28	1.24	1.20	1.17	1.13	1.09	1.04	1.00	0.96	0.92	0.88	0.85	650
70	2.37	1.98	1.73	1.53	1.41	1.33	1.27	1.21	1.16	1.12	1.08	1.05	1.01	0.97	0.92	0.88	0.84	0.80	0.76	0.73	700
75	2.24	1.87	1.62	1.42	1.30	1.22	1.16	1.10	1.05	1.01	0.97	0.94	0.90	0.86	0.81	0.77	0.73	0.69	0.65	0.62	750
80	2.13	1.77	1.52	1.32	1.20	1.12	1.06	1.00	0.95	0.91	0.87	0.84	0.80	0.76	0.71	0.67	0.63	0.59	0.55	0.52	800
85	2.04	1.69	1.44	1.24	1.12	1.04	0.98	0.92	0.87	0.83	0.79	0.76	0.72	0.68	0.63	0.59	0.55	0.51	0.47	0.44	850
90	1.96	1.61	1.36	1.16	1.04	0.96	0.90	0.84	0.79	0.75	0.71	0.68	0.64	0.60	0.55	0.51	0.47	0.43	0.39	0.36	900
95	1.89	1.54	1.29	1.09	0.97	0.89	0.83	0.77	0.72	0.68	0.64	0.61	0.57	0.53	0.48	0.44	0.40	0.36	0.32	0.29	950
100	1.83	1.48	1.23	1.03	0.91	0.83	0.77	0.71	0.66	0.62	0.58	0.55	0.51	0.47	0.42	0.38	0.34	0.30	0.26	0.23	1000
125	1.68	1.33	1.08	0.88	0.76	0.68	0.62	0.56	0.51	0.47	0.43	0.40	0.36	0.32	0.27	0.23	0.19	0.15	0.11	0.08	1250
150	1.58	1.23	0.98	0.78	0.66	0.58	0.52	0.46	0.41	0.37	0.33	0.30	0.26	0.22	0.17	0.13	0.09	0.05	0.01	0.00	1500
200	1.43	1.08	0.83	0.63	0.51	0.43	0.37	0.31	0.26	0.22	0.18	0.15	0.11	0.07	0.03	0.00	0.00	0.00	0.00	0.00	2000
400	1.23	0.88	0.63	0.43	0.31	0.23	0.17	0.11	0.06	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4000
1000	1.08	0.73	0.48	0.28	0.16	0.08	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10000
∞	1.00	0.65	0.40	0.20	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	∞

Perbezaan di antara beberapa min

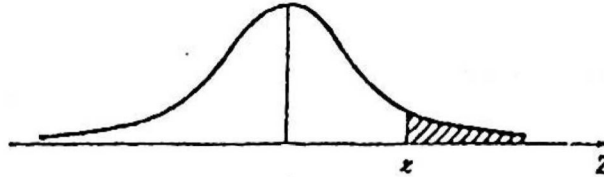
Student's *t* Distribution

Degrees of Freedom	Probability of a Value Greater in Absolute Value than the Table Entry					
	0.005	0.01	0.025	0.05	0.1	0.15
1	63.657	31.821	12.706	6.314	3.078	1.963
2	9.925	6.965	4.303	2.920	1.886	1.386
3	5.841	4.541	3.182	2.353	1.638	1.250
4	4.604	3.747	2.776	2.132	1.533	1.190
5	4.032	3.365	2.571	2.015	1.476	1.156
6	3.707	3.143	2.447	1.943	1.440	1.134
7	3.499	2.998	2.365	1.895	1.415	1.119
8	3.355	2.896	2.306	1.860	1.397	1.108
9	3.250	2.821	2.262	1.833	1.383	1.100
10	3.169	2.764	2.228	1.812	1.372	1.093
11	3.106	2.718	2.201	1.796	1.363	1.088
12	3.055	2.681	2.179	1.782	1.356	1.083
13	3.012	2.650	2.160	1.771	1.350	1.079
14	2.977	2.624	2.145	1.761	1.345	1.076
15	2.947	2.602	2.131	1.753	1.341	1.074
16	2.921	2.583	2.120	1.746	1.337	1.071
17	2.898	2.567	2.110	1.740	1.333	1.069
18	2.878	2.552	2.101	1.734	1.330	1.067
19	2.861	2.539	2.093	1.729	1.328	1.066
20	2.845	2.528	2.086	1.725	1.325	1.064
21	2.831	2.518	2.080	1.721	1.323	1.063
22	2.819	2.508	2.074	1.717	1.321	1.061
23	2.807	2.500	2.069	1.714	1.319	1.060
24	2.797	2.492	2.064	1.711	1.318	1.059
25	2.787	2.485	2.060	1.708	1.316	1.058
26	2.779	2.479	2.056	1.706	1.315	1.058
27	2.771	2.473	2.052	1.703	1.314	1.057
28	2.763	2.467	2.048	1.701	1.313	1.056
29	2.756	2.462	2.045	1.699	1.311	1.055
30	2.750	2.457	2.042	1.697	1.310	1.055
∞	2.576	2.326	1.960	1.645	1.282	1.036

Source: Reprinted from Table IV in Sir Ronald A. Fisher, *Statistical Methods for Research Workers*, 13th edition, Oliver & Boyd Ltd., Edinburgh, 1943, with the permission of the publisher and the late Sir Ronald Fisher's Literary Executor.

The Standardized Normal Distribution

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



<i>z</i>	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
0.0	.5000	.4960	.4920	.4880	.4840	.4801	.4761	.4721	.4681	.4641
0.1	.4602	.4562	.4522	.4483	.4443	.4404	.4364	.4325	.4286	.4247
0.2	.4207	.4168	.4129	.4090	.4052	.4013	.3974	.3936	.3897	.3859
0.3	.3821	.3783	.3745	.3707	.3669	.3632	.3594	.3557	.3520	.3483
0.4	.3446	.3409	.3372	.3336	.3300	.3264	.3228	.3192	.3156	.3121
0.5	.3085	.3050	.3015	.2981	.2946	.2912	.2877	.2843	.2810	.2776
0.6	.2743	.2709	.2676	.2643	.2611	.2578	.2546	.2514	.2483	.2451
0.7	.2420	.2389	.2358	.2327	.2296	.2266	.2236	.2206	.2177	.2148
0.8	.2119	.2090	.2061	.2033	.2005	.1977	.1949	.1922	.1894	.1867
0.9	.1841	.1814	.1788	.1762	.1736	.1711	.1685	.1660	.1635	.1611
1.0	.1587	.1562	.1539	.1515	.1492	.1469	.1446	.1423	.1401	.1379
1.1	.1357	.1335	.1314	.1292	.1271	.1251	.1230	.1210	.1190	.1170
1.2	.1151	.1131	.1112	.1093	.1075	.1056	.1038	.1020	.1003	.0985
1.3	.0968	.0951	.0934	.0918	.0901	.0885	.0869	.0853	.0838	.0823
1.4	.0808	.0793	.0778	.0764	.0749	.0735	.0721	.0708	.0694	.0681
1.5	.0668	.0655	.0643	.0630	.0618	.0606	.0594	.0582	.0571	.0559
1.6	.0548	.0537	.0526	.0516	.0505	.0495	.0485	.0475	.0465	.0455
1.7	.0446	.0436	.0427	.0418	.0409	.0401	.0392	.0384	.0375	.0367
1.8	.0359	.0351	.0344	.0336	.0329	.0322	.0314	.0307	.0301	.0294
1.9	.0287	.0281	.0274	.0268	.0262	.0256	.0250	.0244	.0239	.0233
2.0	.0228	.0222	.0217	.0212	.0207	.0202	.0197	.0192	.0188	.0183
2.1	.0179	.0174	.0170	.0166	.0162	.0158	.0154	.0150	.0146	.0143
2.2	.0139	.0136	.0132	.0129	.0125	.0122	.0119	.0116	.0113	.0110
2.3	.0107	.0104	.0102	.0099	.0096	.0094	.0091	.0089	.0087	.0084
2.4	.0082	.0080	.0078	.0075	.0073	.0071	.0069	.0068	.0066	.0064
2.5	.0062	.0060	.0059	.0057	.0055	.0054	.0052	.0051	.0049	.0048
2.6	.0047	.0045	.0044	.0043	.0041	.0040	.0039	.0038	.0037	.0036
2.7	.0035	.0034	.0033	.0032	.0031	.0030	.0029	.0028	.0027	.0026
2.8	.0026	.0025	.0024	.0023	.0023	.0022	.0021	.0021	.0020	.0019
2.9	.0019	.0018	.0018	.0017	.0016	.0016	.0015	.0015	.0014	.0014
3.0	.0013	.0013	.0013	.0012	.0012	.0011	.0011	.0011	.0010	.0010

The table gives the cumulative probability $P(Z \leq z)$.

Jadual 14.1: Jadual ^a

Derjah kebebasan	Tingkat keertian %				
	0.50	0.10	0.05	0.02	0.01
1	1.000	6.31	12.71	31.82	63.66
2	.816	2.92	4.30	6.96	9.92
3	.765	2.35	3.18	4.54	5.84
4	.741	2.13	2.78	3.75	4.60
5	.727	2.02	2.57	3.36	4.03
6	.718	1.94	2.45	3.14	3.71
7	.711	1.90	2.36	3.00	3.50
8	.706	1.86	2.26	2.90	3.36
9	.703	1.83	2.23	2.82	3.25
10	.700	1.81	2.23	2.76	3.17
11	.697	1.80	2.20	2.72	3.11
12	.695	1.78	2.18	2.68	3.06
13	.694	1.77	2.16	2.65	3.01
14	.692	1.76	2.14	2.62	2.98
15	.691	1.75	2.13	2.60	2.95
16	.690	1.75	2.12	2.58	2.92
17	.689	1.74	2.11	2.57	2.90
18	.688	1.73	2.10	2.55	2.88
19	.688	1.73	2.09	2.54	2.86
20	.687	1.72	2.09	2.53	2.84
21	.686	1.72	2.08	2.52	2.83
22	.686	1.72	2.07	2.51	2.82
23	.685	1.71	2.07	2.50	2.81
24	.685	1.71	2.06	2.49	2.80
25	.684	1.71	2.06	2.48	2.79
26	.684	1.71	2.06	2.48	2.78
27	.684	1.70	2.05	2.47	2.77
28	.683	1.70	2.05	2.47	2.76
29	.683	1.70	2.04	2.46	2.76
30	.683	1.70	2.04	2.46	2.75
∞	.674	1.64	1.96	2.33	2.58

^aJadual ini diringkas dari Jadual III Fisher dan Yates: *Statistical Tables for Biological, Agricultural, and Medical Research* diterbitkan oleh Oliver and Boyd, Ltd., Edinburgh, dengan kebenaran penuh dan pantas.

APPENDIX

TABLE B TABLE OF CRITICAL VALUES OF t^*

df	Level of significance for one-tailed test					
	.10	.05	.025	.01	.005	.0005
	Level of significance for two-tailed test					
	.20	.10	.05	.02	.01	.001
1	3.078	6.314	12.700	31.821	63.657	630.010
2	1.886	2.920	4.303	6.965	9.925	31.598
3	1.638	2.353	3.182	4.541	6.841	12.041
4	1.533	2.132	2.776	3.747	4.604	8.610
5	1.476	2.015	2.571	3.305	4.032	6.850
6	1.440	1.943	2.447	3.143	3.707	6.050
7	1.415	1.893	2.365	2.998	3.499	5.405
8	1.397	1.860	2.306	2.890	3.355	5.041
9	1.383	1.833	2.262	2.821	3.250	4.781
10	1.372	1.812	2.228	2.761	3.169	4.587
11	1.363	1.796	2.201	2.718	3.106	4.437
12	1.356	1.782	2.179	2.681	3.055	4.318
13	1.350	1.771	2.160	2.650	3.012	4.221
14	1.345	1.761	2.145	2.624	2.977	4.140
15	1.341	1.753	2.131	2.602	2.947	4.073
16	1.337	1.746	2.120	2.583	2.921	4.015
17	1.333	1.740	2.110	2.567	2.898	3.965
18	1.330	1.731	2.101	2.552	2.878	3.922
19	1.328	1.726	2.093	2.539	2.861	3.883
20	1.326	1.723	2.086	2.528	2.845	3.850
21	1.323	1.721	2.080	2.518	2.831	3.819
22	1.321	1.717	2.074	2.508	2.819	3.792
23	1.319	1.714	2.069	2.500	2.807	3.767
24	1.318	1.711	2.064	2.492	2.797	3.743
25	1.316	1.708	2.060	2.485	2.787	3.725
26	1.315	1.706	2.056	2.479	2.778	3.707
27	1.314	1.703	2.052	2.473	2.771	3.690
28	1.313	1.701	2.048	2.467	2.763	3.674
29	1.311	1.699	2.045	2.462	2.756	3.659
30	1.310	1.697	2.042	2.457	2.750	3.646
40	1.303	1.684	2.021	2.423	2.704	3.551
60	1.290	1.671	2.000	2.390	2.660	3.460
120	1.280	1.658	1.980	2.358	2.617	3.373
∞	1.282	1.645	1.960	2.326	2.576	3.291

* Table B is abridged from Table III of Fisher and Yates: *Statistical Tables for biological, agricultural, and medical research*, published by Oliver and Boyd Ltd., Edinburgh, by permission of the authors and publishers.

