

**Pengujian Hipotesa Dua-sample,  
4 halaman, 3 soal, 3 tabel (normal/t table).**

1. Sebuah sampel yang terdiri dari 40 observasi diambil dari sebuah populasi dengan  $\sigma_{\text{populasi}} = 5$ . Mean sample adalah 102. Sample kedua terdiri dari 50 observasi dengan  $\sigma_{\text{populasi}} = 6$ . Mean sample kedua adalah 99. Lakukan pengujian hipotesa berikut dengan level of significance 0.04:

$$H_0 : \mu_1 = \mu_2$$

$$H_1 : \mu_1 \neq \mu_2$$

- (a) Apakah ini pengujian one-tailed atau two-tailed?
  - (b) Nyatakan decision rule.
  - (c) Hitung statistik tes.
  - (d) Apa keputusan mengenai  $H_0$ ?
2. Diketahui hipotesa:

$$H_0 : \pi_1 \leq \pi_2$$

$$H_1 : \pi_1 > \pi_2$$

Sebuah sample yang terdiri dari 100 observasi diketahui mempunyai  $X_1 = 70$ . Sampel kedua yang terdiri dari 150 observasi mempunyai  $X_2 = 90$ . Gunakan significance level 0.05 untuk menguji hipotesa.

- (a) Nyatakan decision rule.
  - (b) Hitung proporsi gabungan (pooled proportion)
  - (c) Hitung statistik tes.
  - (d) Apa keputusan tentang  $H_0$ ?
3. Diketahui hipotesa:

$$H_0 : \mu_1 = \mu_2$$

$$H_1 : \mu_1 \neq \mu_2$$

Sebuah random sample yang terdiri dari 10 observasi mempunyai sample mean 23 dan sample deviation 4. Random sample kedua terdiri dari 8 observasi mempunyai sample mean 26 dan sample deviation 5. Pada significance level 0.05

- (a) Nyatakan decision rule
- (b) hitung estimasi variance gabungan dari populasi
- (c) hitung statistik tes
- (d) apa keputusan tentang  $H_0$ ?

<b>z</b>	<b>0.00</b>	<b>0.01</b>	<b>0.02</b>	<b>0.03</b>	<b>0.04</b>	<b>0.05</b>	<b>0.06</b>	<b>0.07</b>	<b>0.08</b>	<b>0.09</b>
0.0	0.0000	0.0040	0.0080	0.0120	0.0160	0.0199	0.0239	0.0279	0.0319	0.0359
0.1	0.0398	0.0438	0.0478	0.0517	0.0557	0.0596	0.0636	0.0675	0.0714	0.0753
0.2	0.0793	0.0832	0.0871	0.0910	0.0948	0.0987	0.1026	0.1064	0.1103	0.1141
0.3	0.1179	0.1217	0.1255	0.1293	0.1331	0.1368	0.1406	0.1443	0.1480	0.1517
0.4	0.1554	0.1591	0.1628	0.1664	0.1700	0.1736	0.1772	0.1808	0.1844	0.1879
0.5	0.1915	0.1950	0.1985	0.2019	0.2054	0.2088	0.2123	0.2157	0.2190	0.2224
0.6	0.2257	0.2291	0.2324	0.2357	0.2389	0.2422	0.2454	0.2486	0.2517	0.2549
0.7	0.2580	0.2611	0.2642	0.2673	0.2704	0.2734	0.2764	0.2794	0.2823	0.2852
0.8	0.2881	0.2910	0.2939	0.2967	0.2995	0.3023	0.3051	0.3078	0.3106	0.3133
0.9	0.3159	0.3186	0.3212	0.3238	0.3264	0.3289	0.3315	0.3340	0.3365	0.3389
1.0	0.3413	0.3438	0.3461	0.3485	0.3508	0.3531	0.3554	0.3577	0.3599	0.3621
1.1	0.3643	0.3665	0.3686	0.3708	0.3729	0.3749	0.3770	0.3790	0.3810	0.3830
1.2	0.3849	0.3869	0.3888	0.3907	0.3925	0.3944	0.3962	0.3980	0.3997	0.4015
1.3	0.4032	0.4049	0.4066	0.4082	0.4099	0.4115	0.4131	0.4147	0.4162	0.4177
1.4	0.4192	0.4207	0.4222	0.4236	0.4251	0.4265	0.4279	0.4292	0.4306	0.4319
1.5	0.4332	0.4345	0.4357	0.4370	0.4382	0.4394	0.4406	0.4418	0.4429	0.4441
1.6	0.4452	0.4463	0.4474	0.4484	0.4495	0.4505	0.4515	0.4525	0.4535	0.4545
1.7	0.4554	0.4564	0.4573	0.4582	0.4591	0.4599	0.4608	0.4616	0.4625	0.4633
1.8	0.4641	0.4649	0.4656	0.4664	0.4671	0.4678	0.4686	0.4693	0.4699	0.4706
1.9	0.4713	0.4719	0.4726	0.4732	0.4738	0.4744	0.4750	0.4756	0.4761	0.4767
2.0	0.4772	0.4778	0.4783	0.4788	0.4793	0.4798	0.4803	0.4808	0.4812	0.4817
2.1	0.4821	0.4826	0.4830	0.4834	0.4838	0.4842	0.4846	0.4850	0.4854	0.4857
2.2	0.4861	0.4864	0.4868	0.4871	0.4875	0.4878	0.4881	0.4884	0.4887	0.4890
2.3	0.4893	0.4896	0.4898	0.4901	0.4904	0.4906	0.4909	0.4911	0.4913	0.4916
2.4	0.4918	0.4920	0.4922	0.4925	0.4927	0.4929	0.4931	0.4932	0.4934	0.4936
2.5	0.4938	0.4940	0.4941	0.4943	0.4945	0.4946	0.4948	0.4949	0.4951	0.4952
2.6	0.4953	0.4955	0.4956	0.4957	0.4959	0.4960	0.4961	0.4962	0.4963	0.4964
2.7	0.4965	0.4966	0.4967	0.4968	0.4969	0.4970	0.4971	0.4972	0.4973	0.4974
2.8	0.4974	0.4975	0.4976	0.4977	0.4977	0.4978	0.4979	0.4979	0.4980	0.4981
2.9	0.4981	0.4982	0.4982	0.4983	0.4984	0.4984	0.4985	0.4985	0.4986	0.4986
3.0	0.4987	0.4987	0.4987	0.4988	0.4988	0.4989	0.4989	0.4989	0.4990	0.4990

Gambar 1. Tabel normal

Confidence Intervals, <i>c</i>							Confidence Intervals, <i>c</i>						
<i>df</i>	80%	90%	95%	98%	99%	99.9%	<i>df</i>	80%	90%	95%	98%	99%	99.9%
	Level of Significance for One-Tailed Test, $\alpha$							Level of Significance for One-Tailed Test, $\alpha$					
	0.10	0.05	0.025	0.01	0.005	0.0005		0.10	0.05	0.025	0.01	0.005	0.0005
	Level of Significance for Two-Tailed Test, $\alpha$							Level of Significance for Two-Tailed Test, $\alpha$					
	0.20	0.10	0.05	0.02	0.01	0.001		0.20	0.10	0.05	0.02	0.01	0.001
1	3.078	6.314	12.706	31.821	63.657	636.619	36	1.306	1.688	2.028	2.434	2.719	3.582
2	1.886	2.920	4.303	6.965	9.925	31.599	37	1.305	1.687	2.026	2.431	2.715	3.574
3	1.638	2.353	3.182	4.541	5.841	12.924	38	1.304	1.686	2.024	2.429	2.712	3.566
4	1.533	2.132	2.776	3.747	4.604	8.610	39	1.304	1.685	2.023	2.426	2.708	3.558
5	1.476	2.015	2.571	3.365	4.032	6.869	40	1.303	1.684	2.021	2.423	2.704	3.551
6	1.440	1.943	2.447	3.143	3.707	5.959	41	1.303	1.683	2.020	2.421	2.701	3.544
7	1.415	1.895	2.365	2.998	3.499	5.408	42	1.302	1.682	2.018	2.418	2.698	3.538
8	1.397	1.860	2.306	2.896	3.355	5.041	43	1.302	1.681	2.017	2.416	2.695	3.532
9	1.383	1.833	2.262	2.821	3.250	4.781	44	1.301	1.680	2.015	2.414	2.692	3.526
10	1.372	1.812	2.228	2.764	3.169	4.587	45	1.301	1.679	2.014	2.412	2.690	3.520
11	1.363	1.796	2.201	2.718	3.106	4.437	46	1.300	1.679	2.013	2.410	2.687	3.515
12	1.356	1.782	2.179	2.681	3.055	4.318	47	1.300	1.678	2.012	2.408	2.685	3.510
13	1.350	1.771	2.160	2.650	3.012	4.221	48	1.299	1.677	2.011	2.407	2.682	3.505
14	1.345	1.761	2.145	2.624	2.977	4.140	49	1.299	1.677	2.010	2.405	2.680	3.500
15	1.341	1.753	2.131	2.602	2.947	4.073	50	1.299	1.676	2.009	2.403	2.678	3.496
16	1.337	1.746	2.120	2.583	2.921	4.015	51	1.298	1.675	2.008	2.402	2.676	3.492
17	1.333	1.740	2.110	2.567	2.898	3.965	52	1.298	1.675	2.007	2.400	2.674	3.488
18	1.330	1.734	2.101	2.552	2.878	3.922	53	1.298	1.674	2.006	2.399	2.672	3.484
19	1.328	1.729	2.093	2.539	2.861	3.883	54	1.297	1.674	2.005	2.397	2.670	3.480
20	1.325	1.725	2.086	2.528	2.845	3.850	55	1.297	1.673	2.004	2.396	2.668	3.476
21	1.323	1.721	2.080	2.518	2.831	3.819	56	1.297	1.673	2.003	2.395	2.667	3.473
22	1.321	1.717	2.074	2.508	2.819	3.792	57	1.297	1.672	2.002	2.394	2.665	3.470
23	1.319	1.714	2.069	2.500	2.807	3.768	58	1.296	1.672	2.002	2.392	2.663	3.466
24	1.318	1.711	2.064	2.492	2.797	3.745	59	1.296	1.671	2.001	2.391	2.662	3.463
25	1.316	1.708	2.060	2.485	2.787	3.725	60	1.296	1.671	2.000	2.390	2.660	3.460
26	1.315	1.706	2.056	2.479	2.779	3.707	61	1.296	1.670	2.000	2.389	2.659	3.457
27	1.314	1.703	2.052	2.473	2.771	3.690	62	1.295	1.670	1.999	2.388	2.657	3.454
28	1.313	1.701	2.048	2.467	2.763	3.674	63	1.295	1.669	1.998	2.387	2.656	3.452
29	1.311	1.699	2.045	2.462	2.756	3.659	64	1.295	1.669	1.998	2.386	2.655	3.449
30	1.310	1.697	2.042	2.457	2.750	3.646	65	1.295	1.669	1.997	2.385	2.654	3.447
31	1.309	1.696	2.040	2.453	2.744	3.633	66	1.295	1.668	1.997	2.384	2.652	3.444
32	1.309	1.694	2.037	2.449	2.738	3.622	67	1.294	1.668	1.996	2.383	2.651	3.442
33	1.308	1.692	2.035	2.445	2.733	3.611	68	1.294	1.668	1.995	2.382	2.650	3.439
34	1.307	1.691	2.032	2.441	2.728	3.601	69	1.294	1.667	1.995	2.382	2.649	3.437
35	1.306	1.690	2.030	2.438	2.724	3.591	70	1.294	1.667	1.994	2.381	2.648	3.435

Gambar 2. Tabel t

Confidence Intervals, <i>c</i>							Confidence Intervals, <i>c</i>						
<i>df</i>	80%	90%	95%	98%	99%	99.9%	<i>df</i>	80%	90%	95%	98%	99%	99.9%
	Level of Significance for One-Tailed Test, $\alpha$							Level of Significance for One-Tailed Test, $\alpha$					
	0.10	0.05	0.025	0.01	0.005	0.0005		0.10	0.05	0.025	0.01	0.005	0.0005
	Level of Significance for Two-Tailed Test, $\alpha$							Level of Significance for Two-Tailed Test, $\alpha$					
	0.20	0.10	0.05	0.02	0.01	0.001		0.20	0.10	0.05	0.02	0.01	0.001
71	1.294	1.667	1.994	2.380	2.647	3.433	89	1.291	1.662	1.987	2.369	2.632	3.403
72	1.293	1.666	1.993	2.379	2.646	3.431	90	1.291	1.662	1.987	2.368	2.632	3.402
73	1.293	1.666	1.993	2.379	2.645	3.429	91	1.291	1.662	1.986	2.368	2.631	3.401
74	1.293	1.666	1.993	2.378	2.644	3.427	92	1.291	1.662	1.986	2.368	2.630	3.399
75	1.293	1.665	1.992	2.377	2.643	3.425	93	1.291	1.661	1.986	2.367	2.630	3.398
76	1.293	1.665	1.992	2.376	2.642	3.423	94	1.291	1.661	1.986	2.367	2.629	3.397
77	1.293	1.665	1.991	2.376	2.641	3.421	95	1.291	1.661	1.985	2.366	2.629	3.396
78	1.292	1.665	1.991	2.375	2.640	3.420	96	1.290	1.661	1.985	2.366	2.628	3.395
79	1.292	1.664	1.990	2.374	2.640	3.418	97	1.290	1.661	1.985	2.365	2.627	3.394
80	1.292	1.664	1.990	2.374	2.639	3.416	98	1.290	1.661	1.984	2.365	2.627	3.393
81	1.292	1.664	1.990	2.373	2.638	3.415	99	1.290	1.660	1.984	2.365	2.626	3.392
82	1.292	1.664	1.989	2.373	2.637	3.413	100	1.290	1.660	1.984	2.364	2.626	3.390
83	1.292	1.663	1.989	2.372	2.636	3.412	120	1.289	1.658	1.980	2.358	2.617	3.373
84	1.292	1.663	1.989	2.372	2.636	3.410	140	1.288	1.656	1.977	2.353	2.611	3.361
85	1.292	1.663	1.988	2.371	2.635	3.409	160	1.287	1.654	1.975	2.350	2.607	3.352
86	1.291	1.663	1.988	2.370	2.634	3.407	180	1.286	1.653	1.973	2.347	2.603	3.345
87	1.291	1.663	1.988	2.370	2.634	3.406	200	1.286	1.653	1.972	2.345	2.601	3.340
88	1.291	1.662	1.987	2.369	2.633	3.405	$\infty$	1.282	1.645	1.960	2.326	2.576	3.291

Gambar 3. Tabel t