

Lampiran 23

Uji Asumsi Heteroskedastisitas

1. Korelasi rank Spearman X1 dan nilai absolut galat regresi X1Y

Dari persamaan regresi linier sederhana diketahui bahwa:

$$a = 23,143 \quad b = 0,111$$

Sehingga diperoleh galat model regresi seperti pada tabel berikut

Resp	X1	Y	Yhat	ei	ei	rX1	r ei	d	d ²
1	68	51	30.704	30.966	37.409	4.556	9.113	-4.556	20.760
2	48	58	28.449	31.821	19.355	8.815	17.630	-8.815	77.701
3	54	73	29.155	24.023	25.003	0.694	1.387	-0.694	0.481
4	54	48	29.184	33.977	25.242	6.176	12.353	-6.176	38.149
5	67	51	30.604	31.143	36.613	3.868	7.735	-3.868	14.959
6	61	51	29.909	20.809	31.044	7.237	14.474	-7.237	52.375
7	44	71	28.001	30.867	15.766	10.678	21.356	-10.678	114.019
8	58	68	29.588	40.886	28.479	8.773	17.546	-8.773	76.967
9	68	57	30.671	27.919	37.147	6.525	13.049	-6.525	42.572
10	68	59	30.725	30.167	37.581	5.243	10.485	-5.243	27.486
11	64	67	30.287	44.259	34.071	7.204	14.408	-7.204	51.897
12	68	72	30.713	36.594	37.483	0.629	1.258	-0.629	0.395
13	70	61	30.879	32.379	38.818	4.553	9.107	-4.553	20.733
14	64	51	30.229	42.232	33.610	6.097	12.193	-6.097	37.170
15	66	62	30.490	35.235	35.697	0.327	0.654	-0.327	0.107
16	70	59	30.871	32.034	38.751	4.749	9.498	-4.749	22.553
17	54	55	29.183	49.355	25.231	17.058	34.116	-17.058	290.973
18	66	50	30.476	29.326	35.591	4.430	8.859	-4.430	19.621
19	60	61	29.767	33.449	29.908	2.504	5.008	-2.504	6.269
20	69	60	30.830	50.860	38.423	8.795	17.589	-8.795	77.346
21	65	56	30.361	29.391	34.666	3.730	7.460	-3.730	13.912
22	63	60	30.139	23.161	32.888	6.878	13.755	-6.878	47.300
23	68	59	30.648	49.554	36.968	8.900	17.799	-8.900	79.205
24	59	64	29.666	34.079	29.098	3.523	7.045	-3.523	12.408
25	67	65	30.630	22.699	36.821	9.986	19.972	-9.986	99.718
26	60	69	29.848	33.516	30.559	2.091	4.182	-2.091	4.372
27	54	71	29.095	30.905	24.530	4.508	9.016	-4.508	20.321
28	57	65	29.474	15.096	27.560	8.814	17.627	-8.814	77.680
29	63	65	30.138	40.393	32.880	5.312	10.624	-5.312	28.216
30	59	61	29.641	40.745	28.902	8.374	16.748	-8.374	70.127

31	49	65	28.558	35.966	20.226	11.130	22.259	-11.130	123.870
32	61	67	29.877	48.895	30.788	12.803	25.607	-12.803	163.926
33	58	61	29.562	29.455	28.263	0.843	1.686	-0.843	0.711
34	73	63	31.289	29.109	42.097	9.184	18.368	-9.184	84.347
35	72	67	31.132	27.813	40.837	9.210	18.419	-9.210	84.817
36	58	50	29.616	40.502	28.699	8.346	16.692	-8.346	69.659
37	62	62	29.987	38.463	31.672	4.802	9.604	-4.802	23.058
38	50	56	28.714	36.051	21.478	10.305	20.610	-10.305	106.198
39	57	66	29.463	52.227	27.478	17.500	35.001	-17.500	306.266
40	67	62	30.541	25.882	36.105	7.229	14.458	-7.229	52.261
41	61	59	29.963	25.482	31.475	4.238	8.476	-4.238	17.960
42	66	64	30.483	51.207	35.645	11.004	22.009	-11.004	121.094
43	70	56	30.878	34.154	38.805	3.288	6.577	-3.288	10.814
44	57	65	29.464	23.369	27.479	2.906	5.813	-2.906	8.447
45	72	57	31.184	27.591	41.253	9.660	19.321	-9.660	93.325
46	71	50	31.064	23.404	40.293	11.943	23.886	-11.943	142.635
47	71	54	31.064	17.927	40.293	15.816	31.631	-15.816	250.132
48	77	59	31.725	38.631	45.592	4.922	9.844	-4.922	24.227
49	65	55	30.388	34.213	34.883	0.473	0.947	-0.473	0.224
50	77	45	31.641	24.334	44.920	14.556	29.113	-14.556	211.886
51	66	57	30.487	51.204	35.673	10.982	21.964	-10.982	120.606
52	64	55	30.239	26.061	33.687	5.392	10.785	-5.392	29.077
53	65	70	30.368	39.501	34.723	3.378	6.756	-3.378	11.411
54	62	69	30.029	24.869	32.007	5.047	10.094	-5.047	25.471
55	61	55	29.964	28.913	31.488	1.820	3.641	-1.820	3.314
56	48	58	28.474	34.423	19.551	10.516	21.033	-10.516	110.595
57	57	47	29.443	32.058	27.312	3.356	6.712	-3.356	11.262
58	75	54	31.513	26.806	43.889	12.079	24.159	-12.079	145.909
59	48	63	28.497	41.514	19.740	15.397	30.794	-15.397	237.067
60	61	58	29.888	29.023	30.875	1.310	2.620	-1.310	1.716
61	53	64	28.997	33.829	23.741	7.134	14.267	-7.134	50.887
62	70	66	30.951	27.308	39.392	8.545	17.090	-8.545	73.018
63	70	54	30.952	36.795	39.402	1.843	3.687	-1.843	3.398
64	52	69	28.883	22.944	22.826	0.083	0.166	-0.083	0.007
65	58	69	29.588	29.004	28.474	0.374	0.748	-0.374	0.140
66	59	69	29.743	23.980	29.714	4.055	8.109	-4.055	16.440
67	72	75	31.146	28.576	40.953	8.752	17.504	-8.752	76.598
68	59	62	29.679	27.059	29.206	1.519	3.038	-1.519	2.307
69	42	74	27.820	31.587	14.313	12.215	24.429	-12.215	149.196

70	57	63	29.490	26.471	27.690	0.861	1.723	-0.861	0.742
71	56	61	29.342	23.049	26.503	2.443	4.885	-2.443	5.967
72	48	53	28.502	22.687	19.777	2.058	4.115	-2.058	4.234
73	41	56	27.671	28.112	13.125	10.597	21.195	-10.597	112.306
74	44	51	28.035	32.148	16.039	11.391	22.782	-11.391	129.760
75	45	58	28.128	36.556	16.778	13.985	27.970	-13.985	195.582
76	53	73	29.014	28.324	23.876	3.145	6.291	-3.145	9.894
77	54	48	29.190	31.488	25.288	4.384	8.768	-4.384	19.220
78	68	51	30.683	34.049	37.247	2.262	4.523	-2.262	5.115
79	55	51	29.266	31.767	25.893	4.154	8.308	-4.154	17.254
80	38	71	27.400	35.816	10.952	17.582	35.164	-17.582	309.121
81	56	68	29.343	34.197	26.512	5.434	10.869	-5.434	29.534
82	52	57	28.894	41.270	22.917	12.977	25.955	-12.977	168.414
83	42	59	27.843	33.355	14.500	13.333	26.665	-13.333	177.758
84	36	67	27.115	32.024	8.668	16.515	33.030	-16.515	272.745
Jumlah	5041	5079	2415.214	2652.472	2455.338	572.038	1144.076	-572.038	16028,88

Dari tabel di atas dapat dihitung korelasi rank Spearman antara X1 dan galat X1 melalui rumus berikut,

$$rs_{x_1ei} = 1 - \left(\frac{6\sum d^2}{n(n^2 - 1)} \right)$$

$$rs_{x_1ei} = 1 - \left(\frac{6(16028,88)}{84(84^2 - 1)} \right)$$

$$rs_{x_1ei} = 1 - \left(\frac{96173,28}{84(2915)} \right)$$

$$rs_{x_1ei} = 1 - \left(\frac{96173,28}{157410} \right)$$

$$rs_{x_1ei} = 1 - 0.956 = 0,044$$

2. Korelasi rank Spearman X2 dan nilai absolut galat regresi X2Y

Dari persamaan regresi linier sederhana diketahui bahwa:

$$a = 19,336 \quad b = 0,548$$

Sehingga diperoleh galat model regresi seperti pada tabel berikut

Resp	X2	Y	Yhat	ei	ei	rX1	r ei	d	d ²
1	70	51	56.662	-5.731	11.451	12.150	24.299	-12.150	147.615

2	60	58	45.533	11.979	2.272	6.864	13.728	-6.864	47.116
3	68	73	49.015	24.392	5.143	13.611	27.221	-13.611	185.250
4	74	48	49.162	-0.684	5.265	4.206	8.413	-4.206	17.693
5	47	51	56.171	-4.756	11.046	11.174	22.348	-11.174	124.860
6	57	51	52.738	-2.189	8.215	7.356	14.713	-7.356	54.115
7	55	71	43.320	27.817	0.447	19.354	38.708	-19.354	374.579
8	52	68	51.157	16.579	6.911	6.836	13.673	-6.836	46.735
9	58	57	56.500	0.159	11.317	7.890	15.780	-7.890	62.254
10	67	59	56.768	2.218	11.538	6.590	13.181	-6.590	43.433
11	70	67	54.604	12.879	9.754	2.210	4.419	-2.210	4.882
12	64	72	56.707	15.030	11.489	2.504	5.009	-2.504	6.272
13	58	61	57.530	3.220	12.167	6.327	12.654	-6.327	40.030
14	73	51	54.320	-2.846	9.519	8.743	17.487	-8.743	76.448
15	67	62	55.606	6.313	10.581	3.017	6.035	-3.017	9.104
16	64	59	57.489	1.468	12.133	7.541	15.083	-7.541	56.872
17	64	55	49.155	6.037	5.259	0.550	1.100	-0.550	0.303
18	47	50	55.541	-5.216	10.526	11.132	22.263	-11.132	123.913
19	67	61	52.038	9.066	7.637	1.011	2.021	-1.011	1.021
20	71	60	57.287	2.823	11.966	6.465	12.931	-6.465	41.800
21	62	56	54.971	1.380	10.056	6.135	12.270	-6.135	37.636
22	65	60	53.875	5.980	9.152	2.243	4.486	-2.243	5.031
23	62	59	56.390	2.552	11.227	6.134	12.268	-6.134	37.623
24	63	64	51.538	12.441	7.225	3.688	7.377	-3.688	13.604
25	61	65	56.299	8.986	11.152	1.532	3.063	-1.532	2.346
26	64	69	52.439	16.450	7.968	5.998	11.996	-5.998	35.974
27	67	71	48.723	22.475	4.903	12.425	24.851	-12.425	154.389
28	60	65	50.591	14.031	6.443	5.365	10.730	-5.365	28.785
29	58	65	53.870	11.239	9.148	1.478	2.957	-1.478	2.185
30	64	61	51.418	9.812	7.126	1.900	3.799	-1.900	3.609
31	70	65	46.070	18.933	2.714	11.469	22.937	-11.469	131.527
32	56	67	52.580	14.225	8.084	4.342	8.683	-4.342	18.850
33	57	61	51.024	10.073	6.801	2.314	4.628	-2.314	5.353
34	58	63	59.552	3.442	13.834	7.349	14.697	-7.349	54.001
35	61	67	58.775	7.920	13.194	3.729	7.458	-3.729	13.907
36	63	50	51.293	-1.082	7.022	5.730	11.461	-5.730	32.837
37	66	62	53.125	9.345	8.534	0.574	1.147	-0.574	0.329
38	68	56	46.841	9.140	3.351	4.094	8.188	-4.094	16.760
39	58	66	50.540	15.417	6.401	6.375	12.750	-6.375	40.639
40	57	62	55.858	6.271	10.788	3.194	6.388	-3.194	10.201

41	63	59	53.004	6.450	8.434	1.403	2.806	-1.403	1.968
42	61	64	55.574	8.722	10.554	1.296	2.591	-1.296	1.678
43	60	56	57.522	-1.857	12.161	9.912	19.824	-9.912	98.250
44	52	65	50.540	14.372	6.402	5.636	11.272	-5.636	31.763
45	57	57	59.031	-1.976	13.406	10.876	21.753	-10.876	118.297
46	50	50	58.440	-8.087	12.917	14.852	29.704	-14.852	220.582
47	53	54	58.440	-4.551	12.917	12.352	24.704	-12.352	152.578
48	63	59	61.706	-2.344	15.612	12.696	25.393	-12.696	161.200
49	69	55	55.104	-0.339	10.166	7.428	14.857	-7.428	55.182
50	64	45	61.292	-16.279	15.270	22.308	44.616	-22.308	497.651
51	74	57	55.591	1.187	10.568	6.633	13.266	-6.633	44.000
52	71	55	54.367	0.378	9.558	6.492	12.983	-6.492	42.141
53	64	70	55.006	14.786	10.085	3.324	6.648	-3.324	11.048
54	60	69	53.331	15.461	8.704	4.778	9.556	-4.778	22.829
55	59	55	53.012	2.071	8.440	4.504	9.007	-4.504	20.282
56	51	58	45.654	12.556	2.371	7.202	14.404	-7.202	51.869
57	60	47	50.438	-3.625	6.317	7.030	14.061	-7.030	49.425
58	62	54	60.656	-7.069	14.745	15.425	30.850	-15.425	237.926
59	66	63	45.770	17.443	2.467	10.590	21.180	-10.590	112.145
60	49	58	52.634	5.824	8.129	1.630	3.260	-1.630	2.657
61	51	64	48.236	15.278	4.502	7.620	15.240	-7.620	58.062
62	59	66	57.884	8.540	12.459	2.772	5.543	-2.772	7.682
63	48	54	57.890	-4.268	12.464	11.831	23.662	-11.831	139.975
64	50	69	47.672	21.565	4.036	12.395	24.790	-12.395	153.631
65	59	69	51.154	17.399	6.908	7.418	14.837	-7.418	55.033
66	62	69	51.918	16.635	7.539	6.432	12.865	-6.432	41.375
67	60	75	58.846	15.692	13.253	1.725	3.450	-1.725	2.976
68	51	62	51.605	10.308	7.280	2.141	4.282	-2.141	4.583
69	57	74	42.424	31.606	-0.292	22.555	45.111	-22.555	508.744
70	55	63	50.670	12.395	6.509	4.162	8.324	-4.162	17.323
71	61	61	49.939	10.737	5.906	3.416	6.832	-3.416	11.668
72	63	53	45.793	7.489	2.486	3.537	7.075	-3.537	12.512
73	63	56	41.692	14.783	-0.896	11.087	22.173	-11.087	122.915
74	49	51	43.489	7.442	0.585	4.848	9.696	-4.848	23.505
75	74	58	43.944	13.568	0.961	8.914	17.828	-8.914	79.459
76	65	73	48.319	25.087	4.570	14.508	29.015	-14.508	210.471
77	64	48	49.190	-0.712	5.288	4.243	8.486	-4.243	18.002
78	70	51	56.562	-5.147	11.368	11.678	23.357	-11.678	136.385
79	64	51	49.563	0.987	5.596	3.259	6.518	-3.259	10.622

80	67	71	40.353	30.785	-2.001	23.183	46.367	-23.183	537.466
81	61	68	49.944	17.791	5.910	8.401	16.802	-8.401	70.575
82	66	57	47.729	8.930	4.083	3.428	6.855	-3.428	11.749
83	65	59	42.540	16.446	-0.197	11.768	23.537	-11.768	138.492
84	65	67	38.945	28.538	-3.162	22.415	44.831	-22.415	502.454
Jumlah	5151	5079	4235.278	661.946	635.273	589.079	1178.157	-589.079	17318,56

Dari tabel di atas dapat dihitung korelasi rank Spearman antara X2 dan galat X2 melalui rumus berikut,

$$rs_{x_2ei} = 1 - \left(\frac{6\sum d^2}{n(n^2 - 1)} \right)$$

$$rs_{x_2ei} = 1 - \left(\frac{6(17318,56)}{84(84^2 - 1)} \right)$$

$$rs_{x_2ei} = 1 - \left(\frac{103911,36}{84(2915)} \right)$$

$$rs_{x_2ei} = 1 - \left(\frac{103911,36}{157410} \right)$$

$$rs_{x_2ei} = 1 - 0.971 = 0,029$$

3. Korelasi rank Spearman X3 dan nilai absolut galat regresi X3Y

Dari persamaan regresi linier sederhana diketahui bahwa:

$$a = 28,091 \quad b = 0,428$$

Sehingga diperoleh galat model regresi seperti pada tabel berikut

Resp	X3	Y	Yhat	ei	ei	rX1	r ei	d	d ²
1	62	51	57.243	12.559	10.869	1.195	2.389	-1.195	1.427
2	60	58	48.551	11.676	-0.747	8.784	17.569	-8.784	77.165
3	53	73	51.271	16.738	2.887	9.794	19.588	-9.794	95.923
4	63	48	51.385	22.179	3.041	13.533	27.066	-13.533	183.142
5	62	51	56.860	-9.947	10.357	14.357	28.715	-14.357	206.136
6	51	51	54.179	2.595	6.774	2.955	5.911	-2.955	8.734
7	59	71	46.823	7.813	-3.056	7.685	15.371	-7.685	59.066
8	70	68	52.944	-0.862	5.124	4.232	8.465	-4.232	17.914
9	59	57	57.117	0.999	10.701	6.860	13.719	-6.860	47.055
10	61	59	57.326	10.006	10.980	0.689	1.378	-0.689	0.475
11	75	67	55.636	13.988	8.722	3.724	7.447	-3.724	13.866
12	67	72	57.279	7.020	10.917	2.756	5.511	-2.756	7.594
13	63	61	57.921	-0.299	11.776	8.538	17.076	-8.538	72.900

14	72	51	55.414	17.181	8.425	6.191	12.382	-6.191	38.331
15	66	62	56.419	10.632	9.768	0.611	1.222	-0.611	0.373
16	63	59	57.889	6.211	11.733	3.904	7.809	-3.904	15.245
17	79	55	51.380	12.759	3.034	6.877	13.753	-6.877	47.288
18	60	50	56.368	-8.964	9.699	13.197	26.394	-13.197	174.167
19	63	61	53.632	13.081	6.043	4.977	9.953	-4.977	24.768
20	82	60	57.731	13.291	11.522	1.251	2.503	-1.251	1.566
21	60	56	55.923	5.905	9.104	2.262	4.524	-2.262	5.117
22	53	60	55.066	9.541	7.960	1.117	2.235	-1.117	1.249
23	80	59	57.031	4.852	10.586	4.054	8.108	-4.054	16.436
24	64	64	53.242	9.924	5.522	3.113	6.225	-3.113	9.689
25	53	65	56.960	3.556	10.491	4.904	9.808	-4.904	24.048
26	63	69	53.945	10.111	6.462	2.581	5.162	-2.581	6.660
27	60	71	51.043	16.438	2.583	9.797	19.594	-9.797	95.983
28	45	65	52.502	7.084	4.533	1.804	3.608	-1.804	3.254
29	71	65	55.063	3.069	7.956	3.456	6.911	-3.456	11.941
30	70	61	53.148	10.891	5.396	3.885	7.771	-3.885	15.096
31	65	65	48.971	20.613	-0.186	14.707	29.414	-14.707	216.300
32	79	67	54.056	1.463	6.609	3.639	7.278	-3.639	13.244
33	59	61	52.840	3.915	4.985	0.756	1.513	-0.756	0.572
34	60	63	59.500	-1.476	13.886	10.863	21.726	-10.863	118.000
35	59	67	58.894	1.927	13.075	7.883	15.765	-7.883	62.137
36	70	50	53.050	10.410	5.265	3.638	7.276	-3.638	13.236
37	68	62	54.481	11.331	7.178	2.937	5.873	-2.937	8.624
38	65	56	49.573	18.577	0.619	12.699	25.397	-12.699	161.255
39	82	66	52.462	5.581	4.479	0.779	1.559	-0.779	0.607
40	56	62	56.615	0.078	10.030	7.038	14.075	-7.038	49.529
41	55	59	54.386	9.054	7.051	1.416	2.832	-1.416	2.005
42	82	64	56.394	4.659	9.734	3.588	7.177	-3.588	12.877
43	65	56	57.915	2.079	11.767	6.851	13.702	-6.851	46.937
44	53	65	52.462	-0.083	4.480	3.226	6.453	-3.226	10.410
45	59	57	59.094	-2.027	13.343	10.868	21.736	-10.868	118.113
46	54	50	58.632	-8.736	12.725	15.175	30.350	-15.175	230.283
47	49	54	58.632	-5.296	12.725	12.743	25.485	-12.743	162.376
48	70	59	61.183	2.098	16.135	9.925	19.850	-9.925	98.509
49	65	55	56.027	13.361	9.244	2.911	5.823	-2.911	8.476
50	56	45	60.859	3.194	15.702	8.844	17.688	-8.844	78.219
51	82	57	56.407	17.203	9.752	5.268	10.536	-5.268	27.753
52	56	55	55.451	15.231	8.475	4.778	9.555	-4.778	22.825

53	70	70	55.950	8.387	9.141	0.533	1.067	-0.533	0.285
54	55	69	54.642	5.852	7.393	1.090	2.180	-1.090	1.188
55	59	55	54.392	5.090	7.059	1.393	2.786	-1.393	1.940
56	63	58	48.646	2.221	-0.621	2.010	4.019	-2.010	4.039
57	62	47	52.382	7.289	4.373	2.062	4.124	-2.062	4.253
58	58	54	60.363	1.229	15.039	9.765	19.530	-9.765	95.357
59	70	63	48.736	17.431	-0.499	12.679	25.357	-12.679	160.747
60	59	58	54.098	-5.127	6.665	8.338	16.677	-8.338	69.530
61	63	64	50.663	0.014	2.075	1.457	2.915	-1.457	2.124
62	58	66	58.198	1.190	12.146	7.746	15.493	-7.746	60.007
63	68	54	58.203	-10.158	12.152	15.775	31.550	-15.775	248.847
64	52	69	50.222	0.168	1.486	0.932	1.864	-0.932	0.868
65	59	69	52.942	5.749	5.121	0.445	0.889	-0.445	0.198
66	54	69	53.539	8.616	5.918	1.907	3.814	-1.907	3.637
67	60	75	58.949	1.218	13.149	8.437	16.874	-8.437	71.185
68	57	62	53.294	-2.032	5.592	5.391	10.781	-5.391	29.060
69	59	74	46.124	11.204	-3.991	10.745	21.490	-10.745	115.454
70	56	63	52.564	2.833	4.616	1.261	2.522	-1.261	1.590
71	52	61	51.993	8.814	3.852	3.509	7.017	-3.509	12.311
72	51	53	48.754	14.147	-0.475	10.340	20.680	-10.340	106.911
73	56	56	45.552	17.523	-4.756	15.753	31.506	-15.753	248.160
74	60	51	46.955	2.297	-2.881	3.661	7.322	-3.661	13.403
75	65	58	47.311	26.306	-2.405	20.301	40.603	-20.301	412.149
76	57	73	50.728	14.351	2.162	8.619	17.238	-8.619	74.286
77	61	48	51.408	12.823	3.070	6.896	13.792	-6.896	47.557
78	65	51	57.165	12.486	10.765	1.217	2.434	-1.217	1.481
79	61	51	51.699	12.546	3.460	6.425	12.850	-6.425	41.278
80	63	71	44.505	22.162	-6.154	20.022	40.045	-20.022	400.894
81	64	68	51.997	8.906	3.858	3.569	7.139	-3.569	12.740
82	70	57	50.266	16.140	1.545	10.320	20.640	-10.320	106.504
83	61	59	46.214	19.277	-3.871	16.368	32.736	-16.368	267.917
84	59	67	43.406	22.085	-7.623	21.007	42.014	-21.007	441.289
Jumlah	5243	5079	4359.967	593.246	510.585	529.818	1059.636	-529.818	16765,84

Dari tabel di atas dapat dihitung korelasi rank Spearman antara X2 dan galat X2 melalui rumus berikut,

$$rs_{x_3ei} = 1 - \left(\frac{6\sum d^2}{n(n^2 - 1)} \right)$$

$$rs_{x_3ei} = 1 - \left(\frac{6(16765,84)}{84(84^2 - 1)} \right)$$

$$rs_{x_3ei} = 1 - \left(\frac{100595,04}{84(2915)} \right)$$

$$rs_{x_3ei} = 1 - \left(\frac{100595,04}{157410} \right)$$

$$rs_{x_3ei} = 1 - 0,91 = 0,09$$

Berdasarkan hasil perhitungan diperoleh $rs_{x_1ei} = 0,044$, $rs_{x_2ei} = 0,0029$, dan $rs_{x_3ei} = 0,09$ sedangkan nilai *rs tabel* pada $n=84$ dan $\alpha = 0,05$ adalah **0,167**, Ketiga nilai korelasi rank Spearman $<$ *rs tabel* maka korelasi tidak signifikan, sehingga **tidak terjadi Heteroskedastisitas** dalam model regresi.

Mencari Uji Heteroskedastisitas

a. Mencari \hat{Y}_{hat}

$$\begin{aligned}\hat{Y}_{\text{hat}} &= a + bx && x \rightarrow \text{merupakan variabel } y \\ &= 23,143 + 0,111 (68) \\ &= 23,143 + 7,561 \\ &= 30,704\end{aligned}$$

b. Mencari e_i

$$\begin{aligned}e_i &= X - \hat{Y}_{\text{hat}} \\ &= 62 - 30,704 \\ &= 30,966\end{aligned}$$

c. Mencari $|e_i|$

$$\begin{aligned}|e_i| &= Y - \hat{Y}_{\text{hat}} \\ &= 68 - 30,704 \\ &= 37,409\end{aligned}$$

d. Mencari r_{X1}

r_{X1} = Standar deviasi dari X dan Y

e. Mencari $r|e_i|$

$r|e_i|$ = Standar deviasi digandakan (dikali 2)

f. Mencari d

$$\begin{aligned}d &= r_{X1} - r|e_i| \\ &= 4,556 - 9,113 \\ &= -4,556\end{aligned}$$

g. Mencari d^2

$$\begin{aligned}d^2 &= d \times d \\ &= -4,556 \times -4,556 \\ &= 20,760\end{aligned}$$