

Fakultas Teknik, Universitas Gadjah Mada

Minggu	Jumlah KA	Penumpang
1	72	18.764
2	48	6.688
3	77	16.504
4	91	22.944
5	94	25.063
6	86	20.897
7	99	30.357
8	113	27.076
9	118	28.260
10	133	36.683
11	133	40.090
12	135	39.040
13	137	45.350
14	140	51.648
15	176	58.598
16	186	55.163
17	194	57.519
18	189	52.820
19	187	59.219
20	181	70.065

Data di bawah adalah data operasi mingguan sebuah KA listrik di daerah perkotaan. Diambil dari Sprague, F.J. (1888). "The Solution of Municipal Rapid Transit," Journal of American Institute of Electrical Engineers. Vol. 5. pp. 352-399.

Gunakan regresi linier:

$$y = ax + b$$

untuk menyatakan korelasi antara jumlah penumpang dengan jumlah KA yang beroperasi.

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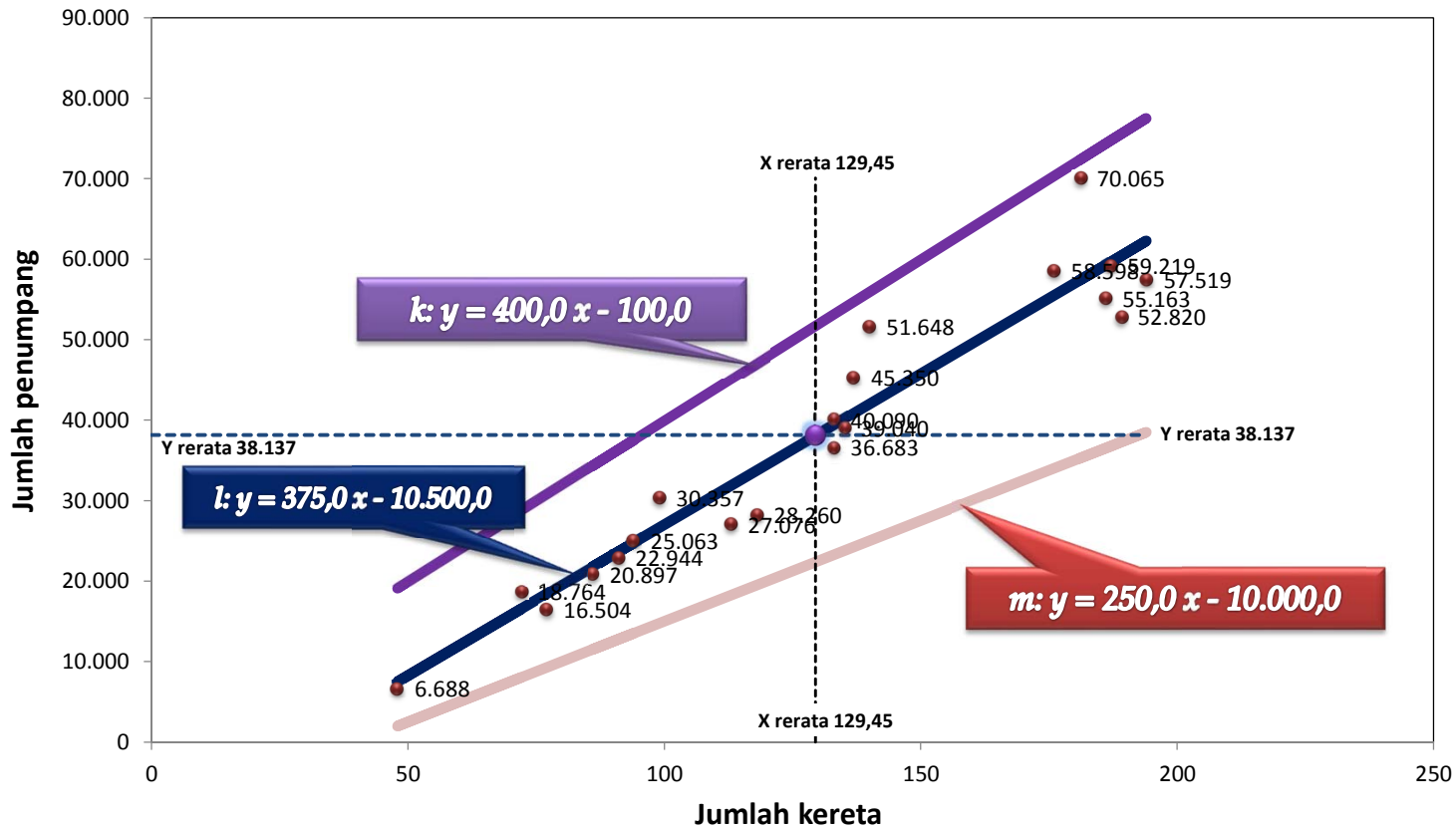
Ilustrasi Regresi Linier: $y = ax + b$

Data		$m: y = 250,0 x - 10.000,0$				$l: y = 375,0 x - 10.500,0$				$k: y = 400,0 x - 100,0$			
x_i (m)	y_i (m)	$a = 250$	$b = -10000$		d_i^2 (m)	$a = 375$	$b = -10500$		d_i^2 (m)	$a = 400$	$b = -100$		d_i^2 (m)
		y_i (m)	d_i (m)	$ d_i $ (m)		y_i (m)	d_i (m)	$ d_i $ (m)		y_i (m)	d_i (m)	$ d_i $ (m)	
72	18.764	8.000	-10.764	10.764	115.863.696	16.500	-2.264	2.264	5.125.696	28.700	9.936	9.936	98.724.096
48	6.688	2.000	-4.688	4.688	21.977.344	7.500	812	812	659.344	19.100	12.412	12.412	154.057.744
77	16.504	9.250	-7.254	7.254	52.620.516	18.375	1.871	1.871	3.500.641	30.700	14.196	14.196	201.526.416
91	22.944	12.750	-10.194	10.194	103.917.636	23.625	681	681	463.761	36.300	13.356	13.356	178.382.736
94	25.063	13.500	-11.563	11.563	133.702.969	24.750	-313	313	97.969	37.500	12.437	12.437	154.678.969
86	20.897	11.500	-9.397	9.397	88.303.609	21.750	853	853	727.609	34.300	13.403	13.403	179.640.409
99	30.357	14.750	-15.607	15.607	243.578.449	26.625	-3.732	3.732	13.927.824	39.500	9.143	9.143	83.594.449
113	27.076	18.250	-8.826	8.826	77.898.276	31.875	4.799	4.799	23.030.401	45.100	18.024	18.024	324.864.576
118	28.260	19.500	-8.760	8.760	76.737.600	33.750	5.490	5.490	30.140.100	47.100	18.840	18.840	354.945.600
133	36.683	23.250	-13.433	13.433	180.445.489	39.375	2.692	2.692	7.246.864	53.100	16.417	16.417	269.517.889
133	40.090	23.250	-16.840	16.840	283.585.600	39.375	-715	715	511.225	53.100	13.010	13.010	169.260.100
135	39.040	23.750	-15.290	15.290	233.784.100	40.125	1.085	1.085	1.177.225	53.900	14.860	14.860	220.819.600
137	45.350	24.250	-21.100	21.100	445.210.000	40.875	-4.475	4.475	20.025.625	54.700	9.350	9.350	87.422.500
140	51.648	25.000	-26.648	26.648	710.115.904	42.000	-9.648	9.648	93.083.904	55.900	4.252	4.252	18.079.504
176	58.598	34.000	-24.598	24.598	605.061.604	55.500	-3.098	3.098	9.597.604	70.300	11.702	11.702	136.936.804
186	55.163	36.500	-18.663	18.663	348.307.569	59.250	4.087	4.087	16.703.569	74.300	19.137	19.137	366.224.769
194	57.519	38.500	-19.019	19.019	361.722.361	62.250	4.731	4.731	22.382.361	77.500	19.981	19.981	399.240.361
189	52.820	37.250	-15.570	15.570	242.424.900	60.375	7.555	7.555	57.078.025	75.500	22.680	22.680	514.382.400
187	59.219	36.750	-22.469	22.469	504.855.961	59.625	406	406	164.836	74.700	15.481	15.481	239.661.361
181	70.065	35.250	-34.815	34.815	1.212.084.225	57.375	-12.690	12.690	161.036.100	72.300	2.235	2.235	4.995.225
Jumlah			-315.498	315.498	6.042.197.808		-1.873	71.997	466.680.683		270.852	270.852	4.156.955.508

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Tiga kurva linier (l, m, n) yang didekatkan dengan semua data secara coba-coba!



Garis linier: $y = ax + b$			
Garis	k	l	m
a	400	375	250
b	-1,00E+02	-1,05E+04	-1,00E+04
beberapa ukuran kedekatan			
d_i	2,71E+05	-1,87E+03	-3,15E+05
$ d_i $	2,71E+05	7,20E+04	3,15E+05
d_i^2	4,16E+09	4,67E+08	6,04E+09
Warna merah menunjukkan minimum			

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