QUESTÃO 01

TABELA DE DADOS

k	x_k	y_k	x_k^2	x_k^3	x_k^4	$y_k x_k$	$y_k x_k^2$
0	4.13	20.87	17.0569	70.445	290.938	86.1931	355.978
1	7.62	30.3	58.0644	442.451	3371.47	230.886	1759.35
2	9.56	36.75	91.3936	873.723	8352.79	351.33	3358.71
3	11.69	41.15	136.656	1597.51	18674.9	481.043	5623.4
4	13.01	49.75	169.26	2202.07	28649	647.247	8420.69
5	14.99	54.49	224.7	3368.25	50490.1	816.805	12243.9
6	16.59	56.45	275.228	4566.03	75750.5	936.505	15536.6
7	19.66	62.06	386.516	7598.9	149394	1220.1	23987.2
8	20.57	71.31	423.125	8703.68	179035	1466.85	30173
9	23.96	78.39	574.082	13755	329570	1878.22	45002.3
$\sum$	141.78	501.52	2356.08	43178.1	843578	8115.18	146461

AJUSTE LINEAR

$a_0 = 8.97639 \quad a_1 = 2.90419$

AJUSTE QUADRÁTICO

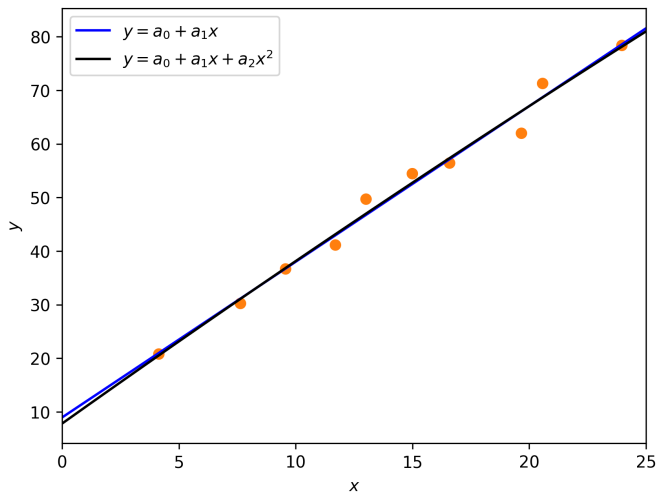
SISTEMA LINEAR

$$10a_0 + 141.78a_1 + 2356.08a_2 = 501.52$$
$$141.78a_0 + 2356.08a_1 + 43178.1a_2 = 8115.18$$
$$2356.08a_0 + 43178.1a_1 + 843578a_2 = 146461$$

SOLUÇÃO

$a_0 = 7.83522 \quad a_1 = 3.09963 \quad a_2 = -0.00691748$

GRÁFICO



QUESTÃO 02 | AJUSTE EXPONENCIAL

TABELA DE DADOS

k	x_k	$\log y_k$	x_k^2	$x_k \log y_k$
1	10.92	2.88926	119.246	31.5507
2	13.57	3.32215	184.145	45.0816
3	15.33	3.46699	235.009	53.1489
4	16.89	3.65222	285.272	61.6859
5	19.56	3.96234	382.594	77.5033
6	21.59	4.06509	466.128	87.7652
7	23.55	4.21479	554.603	99.2583
8	24.51	4.25788	600.74	104.361
9	27.66	4.47643	765.076	123.818
10	28.98	4.58996	839.84	133.017
11	31.54	4.74145	994.772	149.545
12	32.47	4.76303	1054.3	154.656
13	34.47	4.86907	1188.18	167.837
14	37.26	5.0376	1388.31	187.701
15	38.49	5.0876	1481.48	195.822
$\sum$	376.79	63.3958	10539.7	1672.75

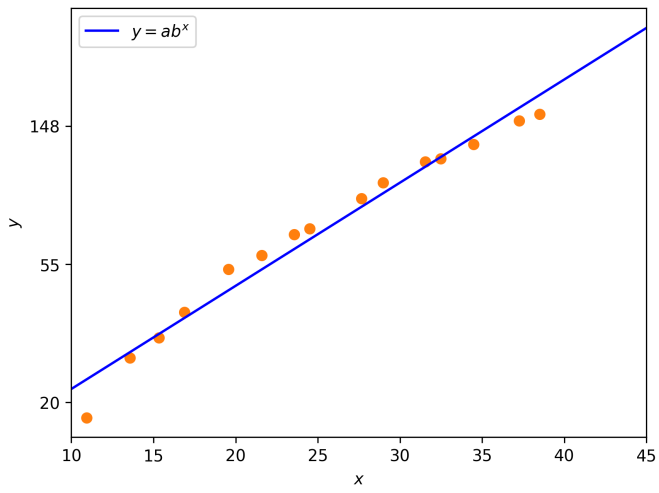
AJUSTE LINEAR

$a_0 = 2.35026 \quad a_1 = 0.0746885$

AJUSTE EXPONENCIAL

$a = e^{a_0} = 10.4883 \quad b = e^{a_1} = 1.07755$

GRÁFICO



QUESTÃO 02 | AJUSTE POTÊNCIA

TABELA DE DADOS

k	$\log x_k$	$\log y_k$	$\log {x_k}^2$	$\log y_k \log x_k$
1	2.47906	1.75872	6.14572	4.35996
2	2.69463	1.698	7.26102	4.57547
3	2.80518	2.223	7.86902	6.23591
4	2.92155	2.66305	8.53544	7.78024
5	3.04023	2.85359	9.24298	8.67557
6	3.16294	3.31745	10.0042	10.4929
7	3.22287	3.49012	10.3869	11.2482
8	3.33042	3.92118	11.0917	13.0592
9	3.38303	4.18495	11.4449	14.1578
10	3.4601	4.57016	11.9723	15.8132
11	3.52548	4.88583	12.429	17.2249
12	3.60414	5.33658	12.9898	19.2338
13	3.65247	5.62076	13.3406	20.5297
14	3.70893	5.97964	13.7561	22.1781
15	3.75185	6.26015	14.0764	23.4872
$\sum$	48.7429	58.7632	160.546	199.052

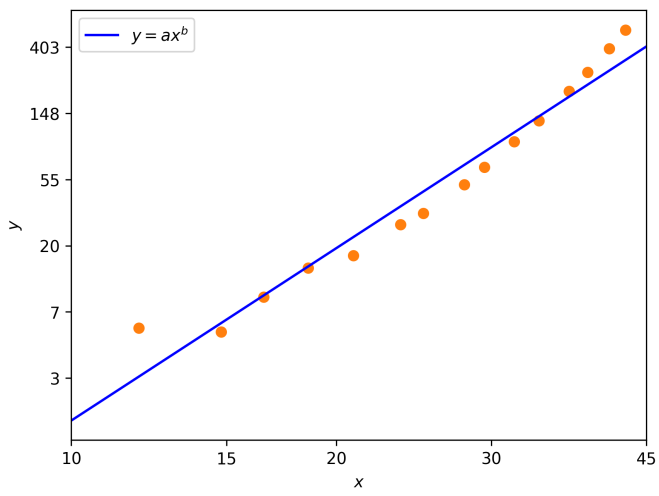
AJUSTE LINEAR

$a_0 = -8.29629 \quad a_1 = 3.75865$

AJUSTE POTÊNCIA

$a = e^{a_0} = 0.000249441 \quad b = a_1 = 3.75865$

GRÁFICO



QUESTÃO 03

PARÂMETROS DA FUNÇÃO

$c_0 = 5.2959 \quad c_1 = -7.2712 \quad c_2 = 2.7287$

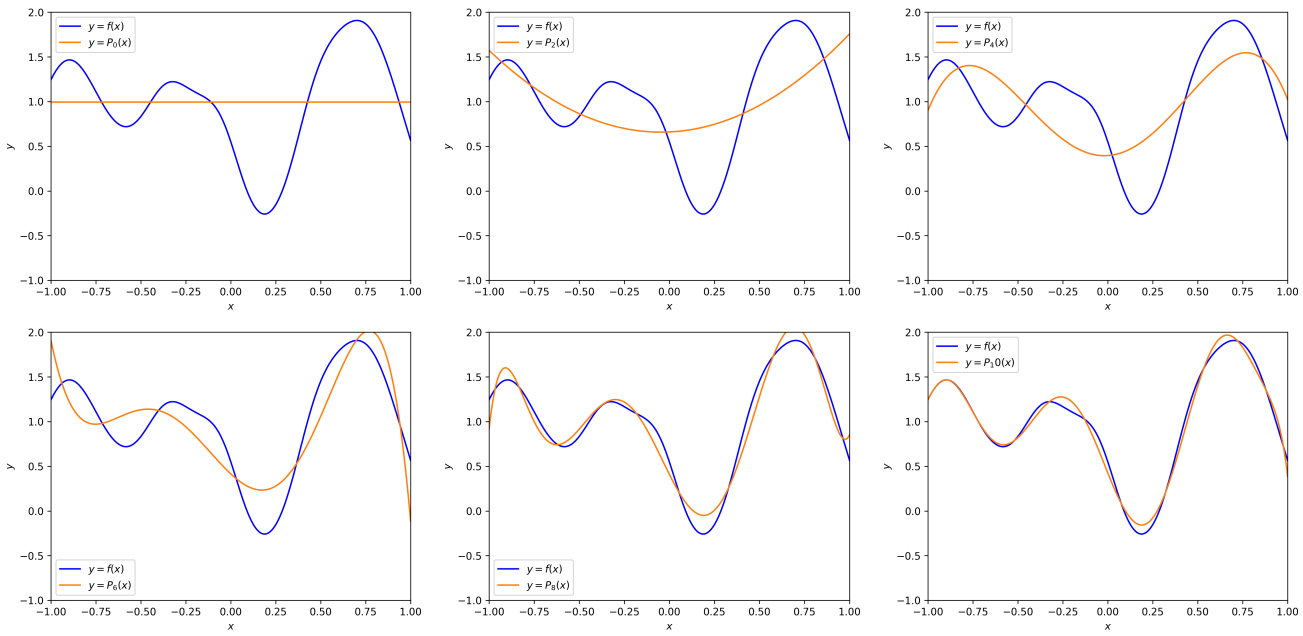
POLINÔMIOS DE LEGENDRE

k	a_k	$EA_k^{(g)}$	$ER_k^{(g)}$
0	0.995315	–	–
1	0.0924998	0.00570414	0.00287072
2	0.669937	0.179526	0.0828633
3	−0.0304714	0.000265288	0.000122433
4	−0.704679	0.110349	0.0484594
5	−1.07294	0.209308	0.0841792
6	−0.0609676	0.000571853	0.000229934
7	0.980621	0.128216	0.0490263
8	−0.0166538	3.26293×10^{-5}	1.24764×10^{-5}
9	−0.397825	0.0166594	0.00632972
10	−0.0655327	0.000409003	0.000155376

POLINÔMIOS TRIGONOMÉTRICOS

k	a_k	b_k	$EA_k^{(g)}$	$ER_k^{(g)}$
0	1.99063	0	–	–
1	−0.497868	0.0239874	0.248448	0.200506
2	−0.147421	−0.497988	0.269726	0.178765
3	0.113231	−0.303947	0.105205	0.0651817
4	−0.0155988	0.083189	0.00716373	0.0044188
5	0.113241	−0.057101	0.0160839	0.00982358
6	−0.0267972	0.0356038	0.00198572	0.00121135
7	0.0243086	−0.053107	0.00341126	0.00207665
8	−0.0175708	0.023787	0.000874557	0.000532115
9	0.0152716	−0.0263147	0.000925686	0.000562906
10	−0.0103954	0.0227866	0.000627292	0.000381308

GRÁFICOS | POLINÔMIOS DE LEGENDRE



GRÁFICOS | POLINÔMIOS TRIGONOMÉTRICOS