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FILS
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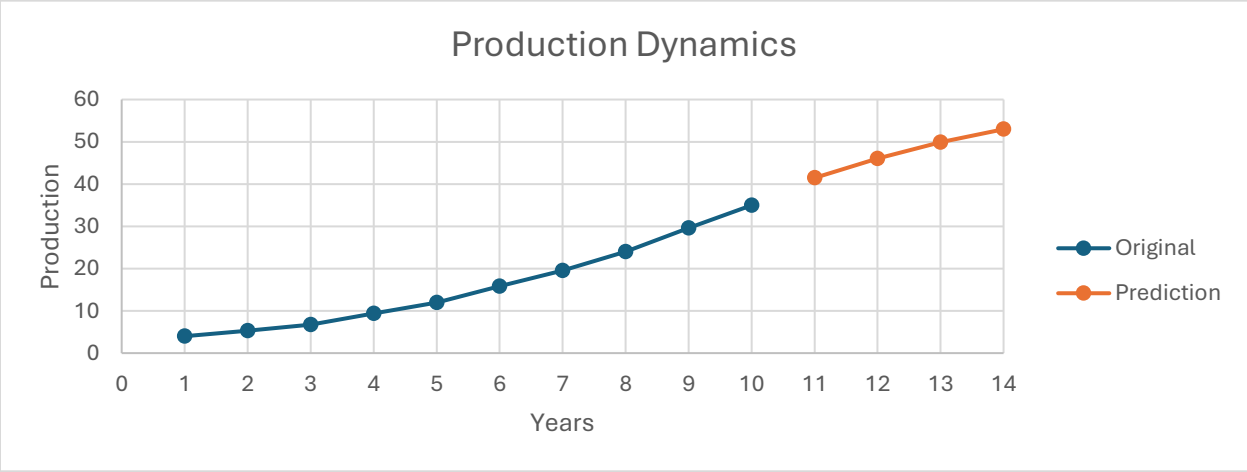
Industrial Management – Homework 1

(LP 12 3)

Data:

Year (t)	Xt(tones)	DXt=Xt+1-Xt	Dt=DXt/Xt	Xt^2	K/Xt-1	ln(K/Xt-1)
Actual Production						
1	4	1,27	0,3175	16	14,52162	2,675639
2	5,27	1,49	0,282732448	27,7729	10,7811158	2,377796
3	6,76	2,61	0,386094675	45,6976	8,18439055	2,102229
4	9,37	2,63	0,280683031	87,7969	5,62609179	1,727415
5	12	3,8	0,316666667	144	4,17387334	1,428844
6	15,8	3,7	0,234177215	249,64	2,92952406	1,07484
7	19,5	4,5	0,230769231	380,25	2,18392206	0,781122
8	24	5,6	0,233333333	576	1,58693667	0,461806
9	29,6	5,38	0,181756757	876,16	1,09751622	0,09305
10	34,98	-	-	-	0,77491367	-0,255
Sums	**126,3**	**30,98**	**2,463713356**	**2403,3174**	**51,8599041**	**12,46774**

1) Production Dynamics Graph



2) a, b, K

Logistic coefficient	q	-0,00569673
Growth Rate parameter	b	0,353690076
Saturation limit	K	62,0864801
	a	3,192069093

3) Correctness

Year (t)	Actual Production	Computed Production	Deviation
Correctness Check			
1	4	3,432459657	-14,1885
2	5,27	4,776842944	-9,35782
3	6,76	6,588629894	-2,53506
4	9,37	8,979925382	-4,16302
5	12	12,05066979	0,422248
6	15,8	15,85792112	0,366589
7	19,5	20,37813717	4,503268
8	24	25,47673947	6,153081
9	29,6	30,90574411	4,411298
10	34,98	36,34317254	3,897006
Deviation Average:			-1,04909

4) Production Forecast

Predicted Production						
11	41,46507302	4,553388971	0,109812636	1719,352281	0,49731993	-0,69852
12	46,01846199	3,844354939	0,083539405	2117,698844	0,3491646	-1,05221
13	49,86281693	3,10679442	0,062306837	2486,300512	0,24514586	-1,4059
14	52,96961135	-	-	-	0,17211508	-1,75959
Sums	**190,3159633**	**11,50453833**	**0,255658878**	**6323,351637**	**1,26374547**	**-4,91623**