

1) i) TMA 06

Problem 1 $U_{r+1} = 1.1 + 0.02 \cos(2\pi r/4) * U_r + -5873$
 Problem 2 $U_{r+1} = 1.1 + 0.0201 \cos(2\pi r/4) * U_r + -5873$
 Problem 3 $U_{r+1} = 1.1 + 0.021 \cos(2\pi r/4) * U_r + -5873$
 Problem 4 $U_{r+1} = 1.1 + 0.03 \cos(2\pi r/4) * U_r + -5873$

	Problem 1	Problem 2	Problem 3	Problem 4
U0	50000	50000	50000	50000
U1	50127	50132	50177	50627
U2	49266.7	49272.2	49321.7	49816.7
U3	47335.036	47336.04878	47345.1143	47430.869
U4	46195.5396	46196.65366	46206.62573	46300.9559
U5	45866.00435	45871.87176	45924.62744	46447.08017
U6	44579.60479	44586.05894	44644.09019	45218.78818
U7	42272.97317	42275.48505	42297.97331	42511.10336
U8	40627.27049	40630.03355	40654.77064	40889.21369
U9	39629.54295	39636.70058	39700.99789	40331.81147
U10	37719.49724	37727.37064	37798.09768	38491.99262
U11	34864.05702	34868.78755	34911.1474	35313.4321
U12	32477.46272	32482.66631	32529.26214	32971.77531
U13	30501.75825	30510.83453	30592.30286	31385.1061
U14	27678.93407	27688.91799	27778.53314	28650.61671
U15	24020.2488	24028.26253	24100.03726	24783.15988
U16	20549.27368	20558.08879	20637.04099	21388.47587
U17	17142.18652	17154.11525	17261.12294	18295.97774
U18	12983.40517	12996.52678	13114.23524	14252.57551
U19	8149.077586	8161.949266	8277.259823	9377.255795
U20	3090.985344	3105.144192	3231.985806	4441.981375
U21	-2411.096415	-2394.92799	-2249.943912	-853.5610465
U22	-8525.206056	-8507.420789	-8347.938303	-6811.917151
U23	-15080.22254	-15060.16371	-14880.42543	-13161.75135
U24	-22461.24479	-22439.18008	-22241.46797	-20350.92649
U25	-31029.59417	-31007.12561	-30805.6856	-28869.54693

highlight for me

The answer to it is problem 1 in the printout. From then, the mortgage is completely repaid by 21 years after the mortgage is taken out.

2/2

ii) It is more appropriate I think, to consider absolute ill conditioning, the parameters are empirically determined and change from cycle to cycle; a relatively well conditioned relationship of this sort would produce in response, say, PTO