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Mathematical Tools for Engineering and Management
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Exercise sheet 13

Exercise 1

(a) Solve the instance of capacitated lot sizing problem over $T = 12$ time periods given in the table:

period t	1	2	3	4	5	6	7	8	9	10	11	12
demand d	7	5	4	8	10	13	8	5	10	12	17	7
fixed (start-up) costs f	12	14	30	13	15	45	22	15	17	14	30	19
unit production costs c	5	3	3	4	6	3	2	4	5	3	3	4
unit holding costs h	1	2	2	1	2	1	3	2	2	2	3	1

Figure 1: Instance of capacitated lot sizing

The maximum production capacity is assumed to be 10 units in each period.

(b) Consider the same instance, but suppose that the maximum production capacity can be an integer multiple of 10 units in each period. The fixed start-up costs f now shall be applied for each installed capacity of 10 units in each period.