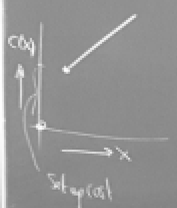
Production problem.

$n = 4$, $H = 3$, $d_j = 4$, $\forall j$

$$C(x) = \begin{cases} 0 & x = 0 \\ 5 + x & x \geq 1 \end{cases}$$



n = # periods

H = maximum stock level

$$f(r,i) = \min_{x} \left[c(x) + f(r+1,\, i+x-d_r) \right]$$

i	f(1,i)	x(1,i)	f(2,i)	x(2,i)	f(3,i)	x(3,i)	f(4,i)	x(4,i)
0					18	4,5, 6 or 7	9	4
1					17	3,4,5,6	8	3
2					16	2,3,4 or 5	7	2
3					15	1,2,3, 4	6	1

(3,0)

x	Cost: prod + remaining cost
4	9 + 9
5	10 + 8
6	11 + 7
7	12 + 6

(3,1)

x	prod + remain...
3	8 + 9
4	9 + 8
5	10 + 7
6	11 + 6

Production problem.

$n=4, \quad H=3, \quad d_i=4, \ \forall i$

$$C(x) = \begin{cases} 0 & x=0 \\ 5+x & x\geq 1 \end{cases}$$

Setup cost

n = # periods

H = maximum stock level

$$f(r,i) = \min_x \left[C(x) + f(r+1, i+x-d_r) \right]$$

i	f(1,i)	x(1,i)	f(2,i)	x(2,i)	f(3,i)	x(3,i)	f(4,i)	x(4,i)
0	36	4 - 7	27	4 - 7	18	4, 5, 6, 7	9	4
1			26	3 - 6	17	3, 4, 5, 6	8	3
2			25	2 - 5	16	2, 3, 4, 5	7	2
3			24	1 - 4	15	1, 2, 3, 4	6	1

(2, 0)

X	Cost: prod + remaining cost
2	7 + 18
3	8 + 17
4	9 + 16
5	10 + 15

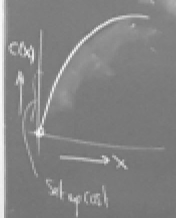
(1, 0)

X	Cost
4	9 + 27
5	10 + 26
6	11 + 25
7	12 + 24

Production problem.

$n = 4$, $H = 3$, $d_j = 4$, $\forall j$

$C(x) = x(15 - x)$



$n = \#$ periods

$H =$ maximum stock level

$$f(r, i) = \min_{x} \left[c(x) + f(r+1, i+x-d_r) \right]$$

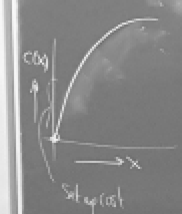
i	$f(1,i)$	$x(1,i)$	$f(2,i)$	$x(2,i)$	$f(3,i)$	$x(3,i)$	$f(4,i)$	$x(4,i)$
0	140	7	114	4 or 7	70	7	44	4
1			106	3	68	6	36	3
2			96	2	64	5	26	2
3			84	1	58	4	14	1

x		
4	44	114
5	50	106
6	54	96
7	56	84

Production problem.

$n=4, \quad H=3, \quad d_j=4, \ \forall j$

$c(x) = x(15-x)$



$n = \#\text{periods}$

$H = \text{maximum stock level}$

$$f(r,i) = \min_{x} \left[c(x) + f(r+1, i+x-d_r) \right]$$

i	$f(1,i)$	$x(1,i)$	$f(2,i)$	$x(2,i)$	$f(3,i)$	$x(3,i)$	$f(4,i)$	$x(4,i)$
0	140	7	114	4 or 7	70	7	44	4
1			106	3	68	6	36	3
2			96	2	64	5	26	2
3			84	1	58	4	14	1

Answer

x_1	x_2	x_3	x_4
7	1	7	1