Example: $H = 3$; $d_j = 4$; $c(x) = 20x - x^2$

$n = 4$ $\qquad\qquad$ $x \le 20$

Period 4 $\qquad$ best choice of production.

i	$f_4(i)$	$x_4(i)$	$f_3(i)$	$x_3(i)$	$f_2(i)$	$x_2(i)$	$f_1(i)$	$x_1(i)$
0	64	4	110	7	174	4 or 7	220	7
1	51	3	103	6	161	3	213	6
2	36	2	94	5	146	2	204	5
3	19	1	83	1 or 4	129	1	193	1 or 4

Example: $H=3$; $d_j=4$; $c(x)=20x-x^2$

$n=4$ $\qquad x \le 20$

Period 4 $\qquad$ best choice of production.

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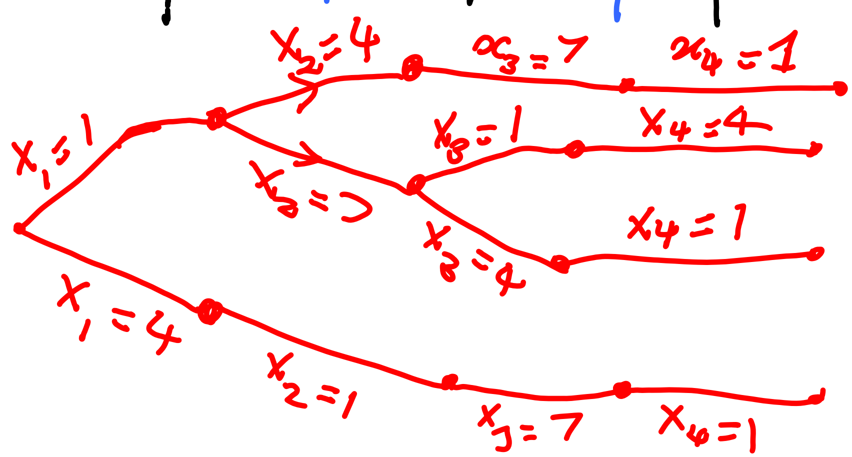
0	64	4	110	7	174	4 or 7	220	7
1	51	3	103	6	161	3	213	6
2	36	2	94	5	146	2	204	5
3	19	1	83	1 or 4	129	1	193	1 or 4

$i=3$ at start



$$f_r(i) = \min_{x} \left[c(x) + f_{r+1}(i+x-d) \right]$$

(i) Suppose there is a holding cost h(average inventory).

$$f_r(i) = \min_{x} \left[c(x) + h\left(i + \frac{x-d}{2}\right) + f_{r+1}(i+x-d) \right]$$

$$f_r(i) = \min_{x} \left[c(x) + f_{r+1}(i+x-d) \right]$$

(11) Suppose I can back-order demand.

π = penalty I pay per period items are back ordered.

B = maximum I can keep back ordered.

$$f_r(i) = \min_{x} \left[c(x) + \pi \max\{0, -i\} + f_{r+1}(i+x-d) \right]$$

$i \geq 0$: amount in stock

$i < 0$: amount back-ordered.

$x \geq 0$

$H \geq i+x-d \geq -B$

$$f_r(i) = \min_x \left[c(x) + f_{r+1}(i+x-d) \right]$$

(iii) Suppose there is a "set-up" cost $g(x, x')$ if production level x is followed by production level x'.