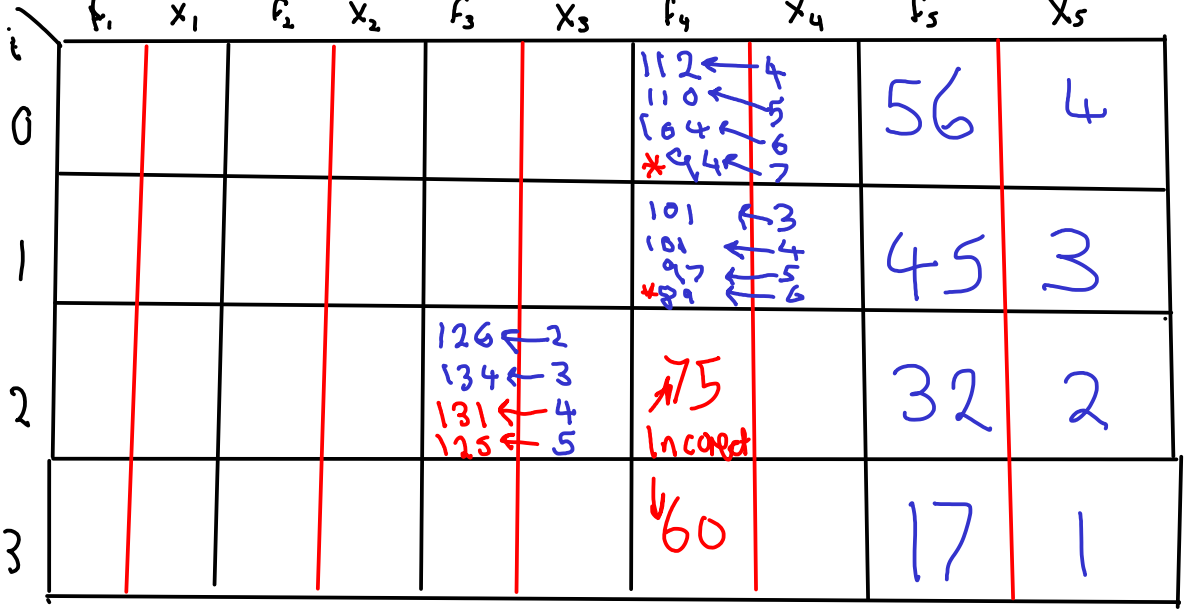
8/29/14

Example of production problem.

$H = 3$, $n = 5$, $c(x) = 18x - x^3$.

$d_i = 4$, $\forall i$

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


$f_1$ $x_1$ $f_2$ $x_2$ $f_3$ $x_3$ $f_4$ $x_4$ $f_5$ $x_5$
i
0
1
2
3
112 ← 4
110 ← 5
104 ← 6
94 ← 7
56
4
101 ← 3
101 ← 4
97 ← 5
89 ← 6
45
3
126 ← 2
134 ← 3
131 ← 4
125 ← 5
75
Incorrect
32
2
60
17
1

① Add a holding cost: $h(i,x)$

$$f_r(i) = \min_x \left\{ C(x) + h(i,x) + f_{r+1}(i+x-d_r) \right\}$$

⑪ Suppose unmet demand is $\Pi$ per item per period — forget holding cost.

$$f_r(i) = \min_x \left\{ C(x) + \Pi(d_r - (i+x))^+ + f_{r+1}(i+x-d_r) \right\}$$

$i$ can be negative