

Review 8–1

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Problem 1

Fill in the blanks in the following assembly–line scheduling example.

Solution 1

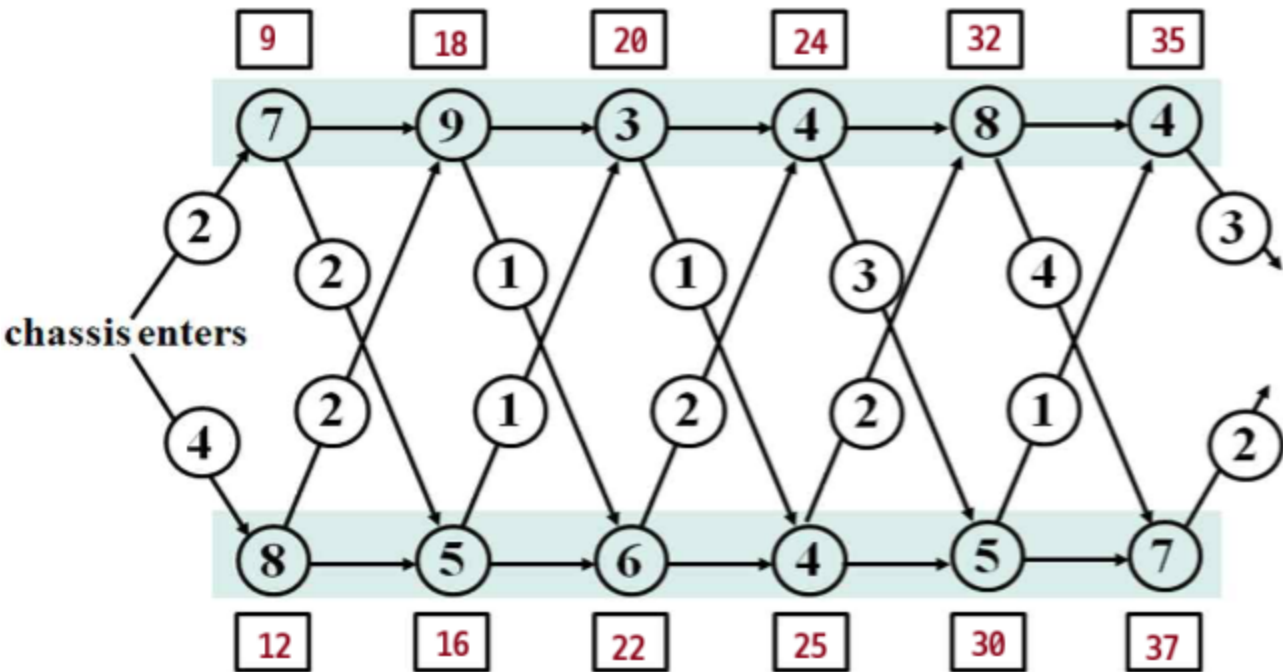


table s

s	1	2	3	4	5	6
1	9	18	20	24	32	35
2	12	16	22	25	30	37

table l

l	1	2	3	4	5	6
1	–	1	2	1	1	2

l	1	2	3	4	5	6
2	–	1	2	1	2	2

$$s^* = 38$$

$$l^* = 1$$

Problem 2

Fill in the blanks in the following pseudocode for assembly-line scheduling

Solution 2

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FASTEST-WAY(a, t, e, x, n)
    s[1][1] = e[1] + a[1][1]
    s[2][1] = e[2] + a[2][1]
    for j = 2 to n
        do
            if s[1][j-1] + a[1][j] <= s[2][j-1] + t[2][j-1] + a[1][j]
                then s[1][j] = s[1][j-1] + a[1][j]
                    l[1][j] = 1
            else s[1][j] = s[2][j-1] + t[2][j-1] + a[1][j]
                    l[1][j] = 2

            if s[2][j-1] <= s[1][j-1] + t[1][j-1]
                then s[2][j] = s[2][j-1] + a[2][j]
                    l[2][j] = 2
            else s[2][j] = s[1][j-1] + t[1][j-1] + a[2][j]
                    l[2][j] = 1
    if s[1][n] + x[1] <= s[2][n] + x[2]
        then s* = s[1][n] + x[1]
            l* = 1
    else s* = s[2][n] + x[2]
        l* = 2

```