Ugeopgave 3

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Task 1

```
1  CHECK-SUPPLY(b', P, B)
2    let M and F be empty lists
3
4    for i = 1 to length of B
5      if B[i] < b'
6        F = [i | F]
7      else if B[i] > b'
8        M = [i | M]
9
10   for each m in M
11     if F is empty
12       return true
13     else
14       f = head(F)
15       dist = abs(P[m] - P[f])
16       surplus = B[m] - b'
17       demand = b' - B[f]
18       cost = 2 * dist
19       load = min(surplus, demand + cost)
20       B[m] = B[m] - load
21       B[f] = B[f] + load - cost
22       if B[f] >= b'
23         F = tail(F)
```

Task 2

Task 3

```
1  MAX-SUPPLY(P, B)
2    limit = max value in B          // runs in O(B)
3    b' = round(limit / 2)
4    while true
5      if CHECK-SUPPLY(b', P, B)
6        if b' == limit
7          return b'
8        else
9          b' = round(b' + (limit - b') / 2)
10     else
11       limit = b'
12       b' = round(limit / 2)
```