Übung 5

1 konkrete Schleifentransformation

```
for(i=1; i≤2; i++)
  for(j=1; j≤3; j++)
    for(k=1; k≤2; k++)
      for(h=1; h≤3; h++)
        A[i][j][k][h] = fun(i,j,k,h);
```

1.1 Verschmolzene Schleife

```
for (l=1;l≤36;l++)
```
$$\texttt{i} = \left\lceil \frac{l}{18} \right\rceil - 2 \left\lfloor \frac{l-1}{36} \right\rfloor$$
$$\texttt{j} = \left\lceil \frac{l}{6} \right\rceil - 3 \left\lfloor \frac{l-1}{18} \right\rfloor$$
$$\texttt{k} = \left\lceil \frac{l}{3} \right\rceil - 2 \left\lfloor \frac{l-1}{6} \right\rfloor$$
$$\texttt{h} = l - 3 \left\lfloor \frac{l-1}{3} \right\rfloor$$
```
A[i][j][k][h] = fun(i,j,k,h);
```

1.2 Prozessorzugriff

- $P = 3$

- $N = 36$

- jeder Prozessor übernimmt $r = \left\lceil \frac{36}{3} \right\rceil = 12$ Iterationen

p=1: A[1][1...2][1...2][1...3]
p=2: A[1...2][3...1][1...2][1...3]
p=3: A[2][2...3][1...2][1...3]