

WQ, FS 2013

(* ProgrammierBeispiel: Gleitende Summe *)

```
liste = Table[Random[Integer, 20], {24}]
subliste = Table[liste[[i + Range[4]]], {i, 0, 20}]
{15, 18, 16, 11, 17, 8, 19, 18, 9, 7, 13, 19, 1, 18, 16, 3, 19, 1, 19, 14, 12, 11, 13, 17}

{{15, 18, 16, 11}, {18, 16, 11, 17}, {16, 11, 17, 8}, {11, 17, 8, 19},
 {17, 8, 19, 18}, {8, 19, 18, 9}, {19, 18, 9, 7}, {18, 9, 7, 13}, {9, 7, 13, 19},
 {7, 13, 19, 1}, {13, 19, 1, 18}, {19, 1, 18, 16}, {1, 18, 16, 3},
 {18, 16, 3, 19}, {16, 3, 19, 1}, {3, 19, 1, 19}, {19, 1, 19, 14},
 {1, 19, 14, 12}, {19, 14, 12, 11}, {14, 12, 11, 13}, {12, 11, 13, 17}}
```

(* analoges Resultat bringt *)

```
sub2 = Partition[liste, 4, 1]
{{15, 18, 16, 11}, {18, 16, 11, 17}, {16, 11, 17, 8}, {11, 17, 8, 19},
 {17, 8, 19, 18}, {8, 19, 18, 9}, {19, 18, 9, 7}, {18, 9, 7, 13}, {9, 7, 13, 19},
 {7, 13, 19, 1}, {13, 19, 1, 18}, {19, 1, 18, 16}, {1, 18, 16, 3},
 {18, 16, 3, 19}, {16, 3, 19, 1}, {3, 19, 1, 19}, {19, 1, 19, 14},
 {1, 19, 14, 12}, {19, 14, 12, 11}, {14, 12, 11, 13}, {12, 11, 13, 17}}

summe4 = Apply[Plus, #] & /@ sub2
{60, 62, 52, 55, 62, 54, 53, 47, 48, 40, 51, 54, 38, 56, 39, 42, 53, 46, 56, 50, 53}
```

(* analoges Resultat bringt *)

```
sum24 = Apply[Plus, sub2, {1}]
{60, 62, 52, 55, 62, 54, 53, 47, 48, 40, 51, 54, 38, 56, 39, 42, 53, 46, 56, 50, 53}

summe4 / 4
```

```
{15,  $\frac{31}{2}$ , 13,  $\frac{55}{4}$ ,  $\frac{31}{2}$ ,  $\frac{27}{2}$ ,  $\frac{53}{4}$ ,  $\frac{47}{4}$ , 12,
 10,  $\frac{51}{4}$ ,  $\frac{27}{2}$ ,  $\frac{19}{2}$ , 14,  $\frac{39}{4}$ ,  $\frac{21}{2}$ ,  $\frac{53}{4}$ ,  $\frac{23}{2}$ , 14,  $\frac{25}{2}$ ,  $\frac{53}{4}}$ 
```

(* allgemeine Definition *)

```
In[1]:= gleiDurch[list_List, n_Integer? (# > 0 &)] :=
  (Apply[Plus, #] & /@ Table[list[[i + Range[n]]], {i, 0, Length[list] - n})) / n
```

(* Beispiel. Verrauschte Sinuskurve glaetten *)

```
In[2]:= li1 = Table[{x, 2 Sin[x] + Random[] - 0.5}, {x, 0, Pi, 0.01}];
```

```
In[3]:= li2 = gleiDurch[li1, 20];
```

```
In[4]:= p1 = ListLinePlot[li1];  
        p2 = ListLinePlot[li2];  
  
In[6]:= GraphicsGrid[{{p1, p2}}]
```

