

Berechnung des Median

Figure 1: Die ursprüngliche Aufgabe mit Lösungen

Man berechne den jeweiligen Median	
Urliste	Lösung
[2,4,11,12,13,10,5,9,7,11,14,9,8]	9
[3,15,6,5,12,10,6,19,4,16,6,1,7,20,1,20,5,18,7,10,10,4,20,7]	7
[7,2,14,13,1,8,13,7,4,6,8,10,5,7,12,15,6,14,14,9,4,5,11,12,4]	8
[5,7,16,1,18,17,6,15,8,3,19,14,1,7,3,7,17,8,15,7]	7,5
[4,1,10,20,5,15,16,8]	9
[8,12,11,10,12,5,14,1,13,1,12,4,12,8,2,14,3,4,2,10,13,15,14,1,10,11,3,4,4,10,11,1,3,11,12,6,11,7,14,12,15,6,14]	10
[5,14,17,7,5,9,19,4,7,17,12,18]	10,5
[5,11,13,11,3,4,6,15,3,9,1,15,15,15,9,1,6,5,11,14,12,10,9,14,7,2,9,3,15]	9

Das gesamte Aufgabenpaket

(%i55) aufgabe:[

```
[2,4,11,12,13,10,5,9,7,11,14,9,8],
[3,15,6,5,12,10,6,19,4,16,6,1,7,20,1,20,5,18,7,10,10,4,20,7],
[7,2,14,13,1,8,13,7,4,6,8,10,5,7,12,15,6,14,14,9,4,5,11,12,4],
[5,7,16,1,18,17,6,15,8,3,19,14,1,7,3,7,17,8,15,7],
[4,1,10,20,5,15,16,8],
[8,12,11,10,12,5,14,1,13,1,12,4,12,8,2,14,3,4,2,10,13,15,14,1,
10,11,3,4,4,10,11,1,3,11,12,6,11,7,14,12,15,6,14],
[5,14,17,7,5,9,19,4,7,17,12,18],
[5,11,13,11,3,4,6,15,3,9,1,15,15,15,9,1,6,5,11,14,12,10,9,14,7,2,9,3,15]
];
```

```
(%o55) [[2, 4, 11, 12, 13, 10, 5, 9, 7, 11, 14, 9, 8], [3, 15, 6, 5, 12, 10, 6,
19, 4, 16, 6, 1, 7, 20, 1, 20, 5, 18, 7, 10, 10, 4, 20, 7], [7, 2, 14, 13, 1, 8
, 13, 7, 4, 6, 8, 10, 5, 7, 12, 15, 6, 14, 14, 9, 4, 5, 11, 12, 4], [5, 7, 16, 1,
18, 17, 6, 15, 8, 3, 19, 14, 1, 7, 3, 7, 17, 8, 15, 7], [4, 1, 10, 20, 5, 15, 16
, 8], [8, 12, 11, 10, 12, 5, 14, 1, 13, 1, 12, 4, 12, 8, 2, 14, 3, 4, 2, 10, 13,
15, 14, 1, 10, 11, 3, 4, 4, 10, 11, 1, 3, 11, 12, 6, 11, 7, 14, 12, 15, 6, 14],
[5, 14, 17, 7, 5, 9, 19, 4, 7, 17, 12, 18], [5, 11, 13, 11, 3, 4, 6, 15, 3, 9, 1
, 15, 15, 15, 9, 1, 6, 5, 11, 14, 12, 10, 9, 14, 7, 2, 9, 3, 15]]
```

(%i56) m:length(aufgabe);

```
(%o56) 8
```

Benutzerdefinierte Funktion

```
(%i49) md(x):=if mod(length(x),2)=0
then 1/2*(sort(x)[length(x)/2]+sort(x)[length(x)/2+1])
else sort(x)[(length(x)+1)/2]$
```

Unterprogramm

```
(%i50) load(descriptive)$
```

Musterbeispiel

```
(%i54) x:[2,4,11,12,13,10,5,9,7,11,14,9,8]
```

```
/* diese Daten dürfen verändert werden */;
```

```
(%o54) [2, 4, 11, 12, 13, 10, 5, 9, 7, 11, 14, 9, 8]
```

```
(%i71) median(x);
```

```
%,numer;
```

```
(%o71) 9
```

```
(%o72) 9
```

```
(%i73) md(x);
```

```
%,numer;
```

```
(%o73) 9
```

```
(%o74) 9
```

Das ganze Paket auf einmal

```
(%i67) map(median,aufgabe);
```

```
%,numer;
```

```
(%o67) [9, 7, 8,  $\frac{15}{2}$ , 9, 10,  $\frac{21}{2}$ , 9]
```

```
(%o68) [9, 7, 8, 7.5, 9, 10, 10.5, 9]
```

```
(%i69) map(md,aufgabe);
```

```
%,numer;
```

```
(%o69) [9, 7, 8,  $\frac{15}{2}$ , 9, 10,  $\frac{21}{2}$ , 9]
```

```
(%o70) [9, 7, 8, 7.5, 9, 10, 10.5, 9]
```