

LU05.L01 - Binär- und Dezimalsystem

Aufgabe 1

145

```
145 : 2 = 72 Rest: 1
 72 : 2 = 36 Rest: 0
 36 : 2 = 18 Rest: 0
 18 : 2 = 9 Rest: 0
 9 : 2 = 4 Rest: 1
 4 : 2 = 2 Rest: 0
 2 : 2 = 1 Rest: 0
 1 : 2 = 0 Rest: 1
Resultat: 10010001
```

0

```
0 : 2 = 0 Rest: 0
Resultat: 0
```

322

```
322 : 2 = 161 Rest: 0
161 : 2 = 80 Rest: 1
 80 : 2 = 40 Rest: 0
 40 : 2 = 20 Rest: 0
 20 : 2 = 10 Rest: 0
 10 : 2 = 5 Rest: 0
 5 : 2 = 2 Rest: 1
 2 : 2 = 1 Rest: 0
 1 : 2 = 0 Rest: 1
Resultat: 101000010
```

57

```
57 : 2 = 28 Rest: 1
28 : 2 = 14 Rest: 0
14 : 2 = 7 Rest: 0
 7 : 2 = 3 Rest: 1
 3 : 2 = 1 Rest: 1
 1 : 2 = 0 Rest: 1
Resultat: 111001
```

29

```
29 : 2 = 14 Rest: 1
```

```
14 : 2 = 7 Rest: 0
7 : 2 = 3 Rest: 1
3 : 2 = 1 Rest: 1
1 : 2 = 0 Rest: 1
Resultat: 11101
```

Aufgabe 2

1001101

```
1 · 1 = 1
0 · 2 = 0
1 · 4 = 4
1 · 8 = 8
0 · 16 = 0
0 · 32 = 0
1 · 64 = 64
-----
77
```

11101

```
1 · 1 = 1
0 · 2 = 0
1 · 4 = 4
1 · 8 = 8
1 · 16 = 16
-----
29
```

11110000

```
0 · 1 = 0
0 · 2 = 0
0 · 4 = 0
0 · 8 = 0
1 · 16 = 16
1 · 32 = 32
1 · 64 = 64
1 · 128 = 128
-----
240
```

10000000

```
0 · 1 = 0
0 · 2 = 0
0 · 4 = 0
```

$$\begin{array}{r} 0 \cdot 8 = 0 \\ 0 \cdot 16 = 0 \\ 0 \cdot 32 = 0 \\ 0 \cdot 64 = 0 \\ 1 \cdot 128 = 128 \\ \hline 128 \end{array}$$

101010

$$\begin{array}{r} 0 \cdot 1 = 0 \\ 1 \cdot 2 = 2 \\ 0 \cdot 4 = 0 \\ 1 \cdot 8 = 8 \\ 0 \cdot 16 = 0 \\ 1 \cdot 32 = 32 \\ \hline 42 \end{array}$$

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