

Lösungen / Statistik 2/12

```
Remove["Global`*"]
```

1.

a

```
 $\sigma = 0.015; n = 24; \alpha = 0.01;$ 
```

```
fr =
```

```
FindRoot[Integrate[E^(-t^2)/2)/Sqrt[2 Pi], {t, -Infinity, z}] == 1 -  $\alpha$ /2, {z, 1}]
```

```
{z -> 2.57583}
```

```
zQ = z /. fr
```

```
2.57583
```

```
h = zQ *  $\sigma$  / Sqrt[n]
```

```
0.00788683
```

```
iI = {22.46 - h, 22.46 + h}
```

```
{22.4521, 22.4679}
```

====> Nein / Non

b

```
 $\sigma = 0.15; h = zQ * \sigma / \text{Sqrt}[n]; iI = \{22.46 - h, 22.46 + h\}$ 
```

```
{22.3811, 22.5389}
```

====> Ja / Oui

c

```
Solve[22.46 + zQ *  $\sigma_1$  / Sqrt[n] == 22.5, { $\sigma_1$ }]
```

```
{{ $\sigma_1$  -> 0.0760762}}
```