

ÜBUNG: Arithm. Operatoren

Gegeben seien:

```
char    c1='5', c2=25, c3, c4=-1;
int      i=5, j=9, k=-15, m, n, p, q;
double   d1=12.5, d2=2.0E-3, d3=-100, d4, d5, d6;
```

Berechnen Sie

```
m = d1*i;
d4 = 9/2;
n = k%4;
j = j+1;
p = d2*750 + 0.1;
d5 = (double)j/i + 0.2;
q = (unsigned char)c4;
d6 = 22%5*3%2;
c3 = (c1-0x30)+c2;
c3 = 64*8;
```

Welche Ausdrücke zeugen von schlechtem Stil ?

- $d1/i = 12.5 * 5 \rightarrow (int) 62.5 = 62 = m$ ⚡
- $9/2 = 4 \rightarrow d4 = 4.0$ ⚡
- $n = k \% 4 = -3$
- $j = j + 1 = 10$
- $d2 * 750 + 0.1 = 0.002 * 750 + 0.1 = 1.6$
 $\rightarrow p = (int) 1.6 = 1$ ⚡
- $d5 = (double)j / i + 0.2 = 9.0 / 5 + 0.2 = 1.8 + 0.2 = 2.0$
- $q = (unsigned char) -1 = 255$
- $22 \% 5 * 3 \% 2 = 2 * 3 \% 2 = 6 \% 2 = 0 = d6$ ⚡
- $(c1 - 0x30) + c2 = (0x35 - 0x30) + 25 = 30 = c3$
- $64 * 8 = 512 \rightarrow (char) 512 = 0 = c3$ ⚡

ÜBUNG Vergleichsoperatoren, log. Operatoren

Was ergeben folgende Ausdrücke:

```
char b1, b2, b3, b4, b5, b6, b7;
```

```
int Zahl=7, Z2=25;
```

```
b1 = !(Zahl > 10) && !(Zahl < 5);
```

```
b2 = (Zahl <= 10) && (Zahl >= 5);
```

```
b3 = Zahl <= 10 && Zahl >= 5;
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```
b4 = (Zahl - 10) && (Zahl - 7);
```

```
b5 = 5 <= Z2 <= 10;
```

```
b6 = 5 <= Z2 && Z2 <= 10;
```

```
b7 = !(Zahl=7);
```

```
b8 = !(Zahl < 10) || Zahl==7 || !(Zahl-7);
```

- $!(7 > 10) \ \&\& \ !(7 < 5) = !0 \ \&\& \ !0 = 1 \ \&\& \ 1 = 1$
besser: $b1 = (Zahl \leq 10) \ \&\& \ (Zahl \geq 5)$ (4)
- s. o.
- $b3 = 1$ besser lesbar durch Klammern! (4)
- $b4 = (7-10) \ \&\& \ (7-7) = \underbrace{(-3)}_{\text{wahr}} \ \&\& \ \underbrace{0}_{\text{falsch}} = 0$
→ Typ-Kuddelmuddel (4)
- $b5 = 5 \leq Z2 \leq 10 = \underbrace{(5 \leq 25)}_{\text{wahr}} \leq 10$
 $= 1 \leq 10 = 1$ → unsinnig (4)
- $b6 = 5 \leq Z2 \ \&\& \ Z2 \leq 10 = 5 \leq 25 \ \&\& \ 25 \leq 10$
 $= 1 \ \&\& \ 0 = 0$ besser Klammern (4)
- $b7 = !(Zahl \overset{\wedge}{=} 7) = \underbrace{!(7)}_{\text{wahr}} = 0$ Typ-Kuddelmuddel (4)
- $b8 = !(7 < 10) \ || \ (7 == 7) \ || \ !(7-7)$
 $= 0 \ || \ 1 \ || \ !0 = 1$ Typ-Kuddelmuddel (4)