

1. $7 \leq 8 = 2^3 \Rightarrow 3 \text{ Bit}$

2. $26 \leq 32 = 2^5 \Rightarrow 5 \text{ Bit}$

3. $10 \leq 16 = 2^4 \Rightarrow 4 \text{ Bit}$

4. $2 = 2^1 \Rightarrow 1 \text{ Bit}$

5. $\log_2(26 \cdot 10^6) \approx 24.63 \Rightarrow 25 \text{ Bit}$

6. 31 Tage: 5 Bit

12 Monate: 4 Bit

9999 Jahre: 14 Bit

Summe 23 Bit

7. $10^{12} = (10^3)^4 < (2^{10})^4 = 2^{40} \Rightarrow 40 \text{ Bit}$

8. $t = \frac{12.5 \cdot 10^6 \cdot 8}{50 \cdot 10^3} = \frac{10^8}{50 \cdot 10^3} = \frac{2 \cdot 10^8}{10^5}$
 $= 2 \cdot 10^3 = 2000 \text{ s} \approx 33 \text{ Minuten}$

9. $t = \frac{12.5 \cdot 10^6 \cdot 8}{10^6} = \frac{10^8}{10^6} = 10^2 = 100 \text{ Sekunden} \approx 1.6 \text{ Minuten}$

10. $t = \frac{12.5 \cdot 10^6 \cdot 8}{10^8} = \frac{10^8}{10^8} = 10^0 = 1 \text{ Sekunde}$

11. $160 \text{ GB} = 160 \cdot 10^9 / 2^{30} \text{ GiB} = 149.012 \text{ GiB}$