

Skalierungen, TBM 2A, 10.2.2012

- ① a) 10^{12} L ($= 1'000'000'000'000 \text{ L}$)
b) $250 \mu\text{L}$
c) 0.155 km^2
d) 0.50 mm^2
e) 590 L
f) $(2.54 \text{ cm})^3 = 16.387 \text{ cm}^3$

② $L = 18.5 \text{ m}$, $m = 84'000 \text{ kg}$, $v_{\text{max}} = 260 \text{ km/h}$
 $q = 1:160$
 $L' = q \cdot L = \frac{1}{160} \cdot 18.5 \text{ m} = \underline{\underline{11.56 \text{ cm}}}$
 $V' = q \cdot v = \underline{\underline{1.625 \text{ km/h}}} = \underline{\underline{0.45 \text{ m/s}}}$
 $m' = q^3 \cdot m = \underline{\underline{26.5 \text{ g}}}$

③ $19'658.05 = P \cdot 1.03 \cdot 0.98 \cdot 0.95$
 $P = \frac{19'658.05}{1.03 \cdot 0.98 \cdot 0.95} = \underline{\underline{20'500.1}}$

$$\textcircled{4} \quad A = 41'285 \text{ km}^2 = 41.285 \cdot 10^3 \text{ km}^2 \\ = 41.285 \cdot 10^9 \text{ m}^2$$

$$A' = 1 \text{ m}^2$$

$$q^2 = \frac{A'}{A} \Rightarrow q = \sqrt{\frac{A'}{A}}$$

$$= 4.922 \cdot 10^{-6}$$

$$= \underline{\underline{1: 203'187.1}}$$

$$b) \quad q = 1: 600'000$$

$$V' = q^3 \cdot V = \underline{\underline{55.1 \mu\text{L}}}$$

$$\textcircled{5} \quad \frac{V'}{V} = q^3 = 3 \Rightarrow q = \sqrt[3]{3}$$

$$p = q - 1 = \sqrt[3]{3} - 1 = \underline{\underline{44.225\%}}$$

$$\textcircled{6} \quad -45\% \Rightarrow p' = p \cdot 0.55$$

$$0.55 = q^{15}$$

$$\sqrt[15]{0.55} = q \Rightarrow p = \underline{\underline{-18.07\%}}$$

$$- \underline{\underline{9.16\%}}$$

$$\sqrt[15]{0.55} = 0.887$$

$$- \underline{\underline{11.2696\%}}$$

$$\Rightarrow p = \underline{\underline{-11.27\%}}$$

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$$\frac{A'}{A} = q^2 = \frac{1}{3} \Rightarrow q = \sqrt{\frac{1}{3}} = \frac{1}{\sqrt{3}} = \frac{\sqrt{3}}{3}$$

$$h' = h \cdot \frac{\sqrt{3}}{3} = 5.77 \text{ cm}$$

resp. Abstand zu e = 4.23 cm

$$\frac{A'}{A} = q^2 = \frac{2}{3} \Rightarrow q = \sqrt{\frac{2}{3}} \approx 0.816$$

$$h' = q \cdot h = 8.165 \text{ cm}$$

resp. 1.84 cm Abstand

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$$18'824'688 = 2000 \cdot q^{96} \quad / : 2000$$

$$9412.344 = q^{96}$$

$$1.1 = q \Rightarrow p = 10\%$$

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$$12.5\% \xrightarrow{1 \text{ Tag}} 25\% \xrightarrow{1 \text{ Tag}} 50\% \xrightarrow{1 \text{ Tag}} 100$$

3 Tage