

1.

Zylinder aus Gold

$r = 30 \text{ mm} \rightarrow 0,3 \text{ dm}$

$h = 1,2 \text{ dm}$

$\rho = 19,32 \text{ kg/dm}^3$

$m = 6,56 \text{ kg}$

$A = r^2 * \pi$

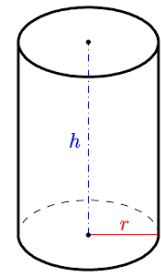
$A = 0,282 \text{ dm}^2$

$V = A * h$

$V = 0,339 \text{ dm}^3$

$m = V * \rho$

$m = 6,56 \text{ kg}$



2.

Quader aus Holz

$l = 62 \text{ cm} \rightarrow 0,62 \text{ m}$

$b = 6,2 \text{ dm} \rightarrow 0,62 \text{ m}$

$h = 0,62 \text{ m}$

$d = 33,5 \text{ cm} \rightarrow 0,355 \text{ m}$

$\rho = 500 \text{ kg/m}^3$

$m = 91,5 \text{ kg}$

$V_Q = l * b * h$

$V_Q = 0,238 \text{ m}^3$

$V_B = \frac{d^2 * \pi}{4} * h$

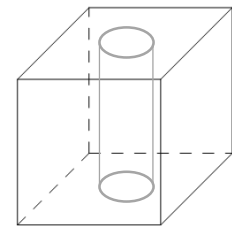
$V_B = 0,055 \text{ m}^3$

$V_{\text{ges}} = V_Q - V_B$

$V_{\text{ges}} = 0,183 \text{ m}^3$

$m = V * \rho$

$m = 91,5 \text{ kg}$



3.

Zylinder aus Eisen

$d = 17,4 \text{ dm}$

$l = 225,9 \text{ cm} \rightarrow 22,59 \text{ dm}$

$r = 200 \text{ mm} \rightarrow 2 \text{ dm}$

$\rho = 7,87 \text{ kg/dm}^3$

$m = 40040,51 \text{ kg}$

$V_Z = \frac{d^2 * \pi}{4} * l$

$V_Z = 5371,61 \text{ dm}^3$

$V_B = r^2 * \pi * l$

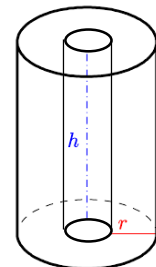
$V_B = 283,87 \text{ dm}^3$

$V_{\text{ges}} = V_Z - V_B$

$V_{\text{ges}} = 5087,74 \text{ dm}^3$

$m = V * \rho$

$m = 40040,51 \text{ kg}$



4.

Würfel

$a = 0,5 \text{ m} \rightarrow 5 \text{ dm}$

$m = 1115 \text{ kg}$

$\rho = 8,92 \text{ kg/dm}^3 = \text{Kupfer}$

$V = a^3$

$V = 125 \text{ dm}^3$

$\rho = \frac{m}{V}$

$\rho = 8,92 \text{ kg/dm}^3$

5.

Zylinder aus Eisen

$$h = 50,2 \text{ dm} \quad V_Z = \frac{d^2 \cdot \pi}{4} * h \quad m = V * \rho$$

$$d = 146 \text{ cm} \rightarrow 14,6 \text{ dm} \quad \underline{V_Z = 8404,26 \text{ dm}^3} \quad \underline{m = 62262,88 \text{ kg}}$$

$$\rho = 7,87 \text{ kg/dm}^3$$

2 Bohrungen

$$V_B = r^2 * \pi * h$$

$$\underline{r = 0,125 \text{ m} \rightarrow 1,25 \text{ dm}} \quad \underline{V_B = 246,42 \text{ dm}^3 * 2 = 492,84 \text{ dm}^3}$$

$$V = 7911,42 \text{ dm}^3$$

$$m = 62262,88 \text{ kg} \quad \underline{V_{\text{ges}} = 7911,42 \text{ dm}^3}$$

6.

Zylinder aus Alu

$$h = 27 \text{ dm} \quad V = r^2 * \pi * h \quad m = V * \rho$$

$$r = 60 \text{ cm} \rightarrow 6 \text{ dm} \quad \underline{V = 3053,63 \text{ dm}^3} \quad \underline{m = 8244,80 \text{ kg}}$$

$$\underline{\rho = 2,7 \text{ kg/dm}^3}$$

$$V = 3053,63 \text{ dm}^3$$

$$m = 8244,80 \text{ kg}$$

7.

Zylinder aus Alu

$$r = 1,12 \text{ m} \rightarrow 11,2 \text{ dm} \quad V_Z = r^2 * \pi * l \quad \underline{V = 9734,565 \text{ dm}^3}$$

$$l = 251 \text{ cm} \rightarrow 25,1 \text{ dm} \quad \underline{V_Z = 9891,44 \text{ dm}^3}$$

Vierkantloch

$$m = V * \rho$$

$$a = 25 \text{ cm} \rightarrow 2,5 \text{ dm} \quad V_L = a^2 * l \quad \underline{m = 26283,33 \text{ kg}}$$

$$\underline{\rho = 2,7 \text{ kg/dm}^3} \quad \underline{V_L = 156,875 \text{ dm}^3}$$

$$m = 26283,33 \text{ kg}$$

8.

Würfel aus Eisen

$$m = 0,98 \text{ kg} \quad V = \frac{m}{\rho} \quad a = \sqrt[3]{V}$$

$$\underline{\rho = 7,87 \text{ kg/dm}^3} \quad \underline{V = 0,125 \text{ dm}^3} \quad \underline{a = 0,5 \text{ dm}}$$

$$a = 0,5 \text{ dm}$$