Volumen – riješeni zadatci za vježbu

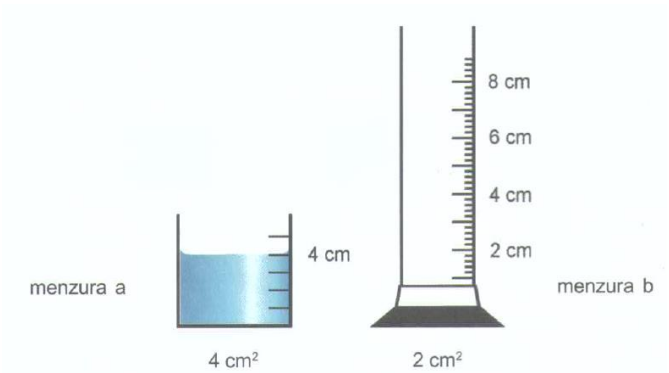
Zad 2. Izrazi u kubnim metrima: a) 17 dm^3; b) 324 cm^3; c) 83 mm^3; 12 L
Rješenje:
a) $\mathbf{17\ dm^3 = 17:\ 1\,000 = 0{,}017\ m^3}$
b) $\mathbf{324\ cm^3 = 324 : 1\,000\,000 = 0{,}000324\ m^3}$
c) $\mathbf{83\ mm^3 = 83 : 1\,000\,000\,000 = 0{,}000000083\ m^3}$
d) $\mathbf{12\ L = 12\ dm^3 = 12 : 1\,000 = 0{,}012\ m^3}$

Zad 2. Pretvori u tražene mjerne jedinice:
a) 4 m^3 =? dm^3; b) 48 cm^3 =? m^3; c) 9 dm^3 =? cm^3; d) 714 mm^3 =? m^3; e) 6 cm^3 =? mm^3;
f) 52 dm^3 =? m^3; g) 3 dm^3 =? mm^3.
Rješenje:
a) $\mathbf{4\ m^3 = 4 \cdot 1\,000 = 4\,000\ dm^3}$
b) $\mathbf{48\ cm^3 = 48 : 1\,000\,000 = 0{,}000048\ m^3}$
c) $\mathbf{9\ dm^3 = 9 \cdot 1\,000 = 9\,000\ cm^3}$
d) $\mathbf{714\ mm^3 = 714 : 1\,000\,000\,000 = 0{,}000000714\ m^3}$
e) $\mathbf{6\ cm^3 = 6 \cdot 1\,000 = 6\,000\ mm^3}$
f) $\mathbf{52\ dm^3 = 52 : 1\,000 = 0{,}052\ m^3}$
g) $\mathbf{3\ dm^3 = 3 \cdot 1\,000\,000 = 3\,000\,000\ mm^3}$

Zad 3. Koliko pijeska možemo usuti u sanduk težine 6 dm, širine 4 dm i visine 3 dm?
Rješenje:
$a = 6$ dm
$b = 4$ dm
$\underline{c = 3\text{ dm}}$
$V = ?$

$$V = a \cdot b \cdot c = 6 \cdot 4 \cdot 3 = 72\ \text{m}^3$$

Zad 4. Vodu iz menzure a želimo preliti u menzuru b. Koju visinu će voda doseći u menzuri b?



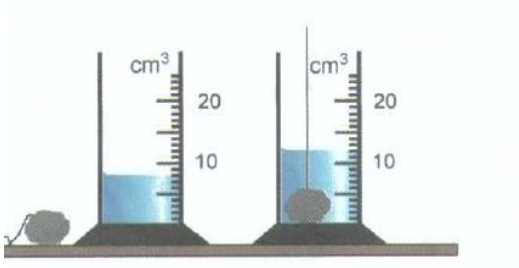
Rješenje:
$A_A = 4\ \text{cm}^2$
$h_A = 4$ cm
$A_B = 2\ \text{cm}^2$
$\underline{V_A = V_B}$
$h_B = ?$

$$V_a = A_A \cdot h_A = 4 \cdot 4 = 16\ \text{cm}^3$$

$$V_B = 16\ \text{cm}^3$$

$$V_B = A_B \cdot h_B \quad \Rightarrow \quad h_B = \frac{V_B}{A_B} = 8\ \text{cm}$$

Zad 5. U menzuru ulijemo vodu, a zatim u vodu uronimo kamen kao na slici. Koliki je obujam kamena?



Rješenje:

$V(\text{voda}) = 8\ \text{cm}^3$

$\underline{V(\text{voda} + \text{kamen}) = 13\ \text{cm}^3}$

$V(\text{kamen}) = ?$

$V(\text{kamen}) = V(\text{voda} + \text{kamen}) - V(\text{voda}) = 13 - 8 = 4\ \text{cm}^3$

Rješenje: $\mathbf{13 - 8 = 5\ cm^3}$

Zad 6. U menzuru ulijemo 16 cm^3 vode. Zatim u nju stavimo 20 olovnih kuglica. Voda u menzuri se podigla do oznake 20 cm^3. Koliki je obujam jedna kuglice?

Rješenje:

$V(\text{voda}) = 16\ \text{cm}^3$

$N = 20$ kuglica

$\underline{V(\text{voda} + 20\ \text{kuglica}) = 20\ \text{cm}^3}$

$V_1 = ?$

$V_{20} = V(\text{voda} + 20\ \text{kuglica}) - V(\text{voda}) = 20 - 16 = 4\ \text{cm}^3$

$$V_1 = \frac{V_{20}}{N} = \frac{4}{20} = 0.2\ \text{cm}^3$$

Zad 7. Preračunaj u tražene mjerne jedinice:

a) 23 dm^3 =? m^3; b) 3 280 cm^3 =? m^3; c) 52 m^3 =? dm^3; d) 18 dm^3 =? cm^3.

Rješenje:

a) $\mathbf{23\ dm^3 = 23 : 1\,000 = 0{,}023\ m^3}$

b) $\mathbf{3\,280\ cm^3 = 3\,280 : 1\,000\,000 = 0{,}003280\ m^3}$

c) $\mathbf{52\ m^3 = 52 \cdot 1\,000 = 52\,000\ dm^3}$

d) $\mathbf{18\ dm^3 = 18 \cdot 1\,000 = 18\,000\ cm^3}$

Zad 8. Preračunaj u tražene mjerne jedinice:

a) 13 hL=? L; b) 5 L=? dL; c) 67 mL=? L; d) 24 dL=? L

Rješenje:

a) $\mathbf{13\ hL = 13 \cdot 1\,000 = 13\,000\ L}$

b) $\mathbf{5\ L = 5 \cdot 10 = 50\ dL}$

c) $\mathbf{67\ mL = 67 : 1\,000 = 0{,}067\ L}$

d) $\mathbf{24\ dL = 24 : 10 = 2{,}4\ L}$

Zad 9. Preračunaj u tražene mjerne jedinice:

a) 9 L=? dm^3; b) 9 L=? cm^3; c) 9 L=? m^3; d) 9 cm^3 =? mL.

Rješenje:

a) $\mathbf{9\ L = 9\ dm^3}$

b) $\mathbf{9\ L = 9\ dm^3 = 9 \cdot 1\,000 = 9\,000\ cm^3}$

c) $\mathbf{9\ L = 9\ dm^3 = 9 : 1\,000 = 0{,}009\ m^3}$

d) $\mathbf{9\ cm^3 = 9\ mL}$