

Rješenja:

1. $F_1 = 20 \text{ N}$
 $l_2 = 25 \text{ cm}$
 $F_2 = 8 \text{ N}$

$l_1 = ?$

$$F_1 \cdot l_1 = F_2 \cdot l_2 \Rightarrow l_1 = \frac{F_2 \cdot l_2}{F_1}$$

$$l_1 = \frac{8 \text{ N} \cdot 25 \text{ cm}}{20 \text{ N}}$$

$$l_1 = 10 \text{ cm}$$

2. $m_1 = 30 \text{ kg} \Rightarrow F_1 = 300 \text{ N}$
 $l_1 = 3 \text{ m}$

$m_2 = 40 \text{ kg} \Rightarrow F_2 = 400 \text{ N}$

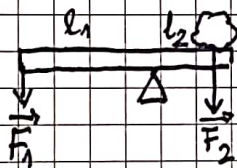
$l_2 = ?$

$$l_2 = \frac{F_1 \cdot l_1}{F_2}$$

$$l_2 = \frac{300 \text{ N} \cdot 3 \text{ m}}{400 \text{ N}}$$

$$l_2 = 2,25 \text{ m}$$

3. $l = 2 \text{ m}$
 $l_1 = 120 \text{ cm}$
 $F_1 = 400 \text{ N}$
 $m_2 = ?$



$$l_2 = l - l_1$$
$$l_2 = 2 - 1,2$$
$$l_2 = 0,8 \text{ m} = 80 \text{ cm}$$

$$F_1 \cdot l_1 = F_2 \cdot l_2 \Rightarrow F_2 = \frac{F_1 \cdot l_1}{l_2}$$

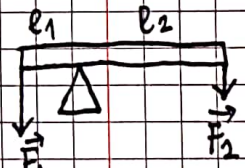
$$F_2 = \frac{400 \text{ N} \cdot 120 \text{ cm}}{80 \text{ cm}}$$

$$F_2 = 600 \text{ N}$$

$$F_2 = G_{\text{teretka}}$$

$$m_2 = 60 \text{ kg}$$

4. $l = 24 \text{ cm}$
 $F_1 = 6 \text{ N}$
 $F_2 = 4 \text{ N}$
 $l_1, l_2 = ?$



$$l_1 + l_2 = l$$
$$l_1 = l - l_2$$
$$l_1 = 24 - l_2$$

$$F_1 \cdot l_1 = F_2 \cdot l_2$$

$$6 \text{ N} \cdot (24 - l_2) = 4 \text{ N} \cdot l_2$$

$$144 \text{ cm} - 6l_2 = 4l_2$$

$$-6l_2 - 4l_2 = -144 \text{ cm}$$

$$-10l_2 = -144 \text{ cm} \quad | :(-10)$$

$$l_2 = 14,4 \text{ cm}$$

$$l_1 = 24 - l_2$$

$$l_1 = 24 - 14,4$$

$$l_1 = 9,6 \text{ cm}$$

$$\begin{aligned} \textcircled{5} \quad F_1 &= 20 \text{ N} \\ l_1 &= 10 \text{ cm} \\ l_2 &= 8 \text{ cm} \\ F_2 &= G_2 = ? \end{aligned}$$

$$F_2 = \frac{F_1 l_1}{l_2}$$

$$F_2 = \frac{20 \text{ N} \cdot 10 \text{ cm}}{8 \text{ cm}}$$

$$F_2 = 25 \text{ N}$$

$$\begin{aligned} \textcircled{6} \quad (a) \quad 11.5 \text{ kPa} &= 11500 \text{ Pa} \\ (b) \quad 133000 \text{ Pa} &= 1.33 \text{ bara} \\ (c) \quad 1.2 \text{ bara} &= 120000 \text{ Pa} \\ (d) \quad 6 \text{ hPa} &= 600 \text{ Pa} \\ (e) \quad 32000 \text{ Pa} &= 320 \text{ hPa} \end{aligned}$$

$$\begin{aligned} \textcircled{7} \quad F &= G = 250 \text{ N} \\ A &= 1.5 \text{ m}^2 \end{aligned}$$

$$p = ?$$

$$p = \frac{F}{A}$$

$$p = \frac{250 \text{ N}}{1.5 \text{ m}^2}$$

$$p = 166.67 \text{ Pa}$$

$$\begin{aligned} \textcircled{8} \quad F &= G = 950 \text{ N} \\ A &= 200 \text{ cm}^2 = 0.02 \text{ m}^2 \end{aligned}$$

$$p = ?$$

$$p = \frac{F}{A}$$

$$p = \frac{950 \text{ N}}{0.02 \text{ m}^2}$$

$$p = 47500 \text{ Pa}$$

$$\begin{aligned} \textcircled{9} \quad m &= 120 \text{ g} = 0.12 \text{ kg} \\ A &= 10 \text{ cm}^2 = 0.001 \text{ m}^2 \\ F &= G = 1.2 \text{ N} \quad (G = m \cdot g) \end{aligned}$$

$$p = \frac{F}{A}$$

$$p = \frac{1.2 \text{ N}}{0.001 \text{ m}^2}$$

$$p = 1200 \text{ Pa}$$

$$\begin{aligned} \textcircled{10} \quad m &= 0.4 \text{ kg} \Rightarrow F = G = m \cdot g = 4 \text{ N} \\ p &= 70 \text{ Pa} \\ A &= ? \end{aligned}$$

$$A = \frac{F}{p}$$

$$A = \frac{4 \text{ N}}{70 \text{ Pa}}$$

$$A = 0.06 \text{ m}^2$$

$$\begin{aligned} \textcircled{11} \quad A &= 12 \text{ cm}^2 = 0.0012 \text{ m}^2 \\ p &= 75 \text{ kPa} = 75000 \text{ Pa} \\ F &= ? \end{aligned}$$

$$F = A \cdot p$$

$$F = 0.0012 \text{ m}^2 \cdot 75000 \text{ Pa}$$

$$F = 90 \text{ N}$$

$$(12) \quad m = 80 \text{ kg} \Rightarrow F = G = mg = 800 \text{ N}$$

$$a = 2 \text{ m}$$

$$b = 10 \text{ cm} = 0,1 \text{ m}$$

$$A = a \cdot b$$

$$A = 2 \text{ m} \cdot 0,1 \text{ m}$$

$$A = 0,2 \text{ m}^2$$

$$p = ?$$

$$p = \frac{F}{A}$$

$$p = \frac{800 \text{ N}}{0,2 \text{ m}^2}$$

$$p = 4000 \text{ Pa}$$

$$(13) \quad A = 120 \text{ m}^2$$

$$h = 40 \text{ cm} = 0,4 \text{ m}$$

$$\rho = 0,6 \text{ g/cm}^3 = 600 \frac{\text{kg}}{\text{m}^3}$$

$$p = ?$$

$$V = A \cdot h$$

$$V = 120 \text{ m}^2 \cdot 0,4 \text{ m}$$

$$V = 48 \text{ m}^3$$

$$m = \rho \cdot V$$

$$m = 600 \frac{\text{kg}}{\text{m}^3} \cdot 48 \text{ m}^3$$

$$m = 28800 \text{ kg}$$

$$F = G = m \cdot g = 288000 \text{ N}$$

$$p = \frac{F}{A}$$

$$p = \frac{288000 \text{ N}}{120 \text{ m}^2} = 2400 \text{ Pa}$$

$$(14) \quad m = 400 \text{ g} = 0,4 \text{ kg}$$

$$G_v = 2,4 \text{ N}$$

$$F_u = ?$$

$$G_z = m \cdot g$$

$$G_z = 0,4 \text{ kg} \cdot 10 \frac{\text{N}}{\text{kg}}$$

$$G_z = 4 \text{ N}$$

$$F_u = G_z - G_v$$

$$F_u = 4 \text{ N} - 2,4 \text{ N}$$

$$F_u = 1,6 \text{ N}$$

$$(15)$$

$$m_A = 40 \text{ kg}$$

$$V = 250 \text{ l} \Rightarrow m_v = 250 \text{ kg}$$

$$p = 5,8 \text{ kPa} = 5800 \text{ Pa}$$

$$\left. \begin{array}{l} m = m_A + m_v \\ m = 290 \text{ kg} \end{array} \right\}$$

$$A = ?$$

$$F = G = m \cdot g = 2900 \text{ N}$$

$$A = \frac{F}{p}$$

$$A = \frac{2900 \text{ N}}{5800 \text{ Pa}}$$

$$A = 0,5 \text{ m}^2$$