

Worksheet Pressure 1



Jason wore boot during the day. The area of the boots in contact with the floor was 500 cm^2 . He weighted 600 N . Calculate the pressure he exerted to the floor (in N/m^2).

Given that :

$$A = \quad \text{cm}^2 = \quad \text{m}^2$$

$$W = \quad \text{N}$$

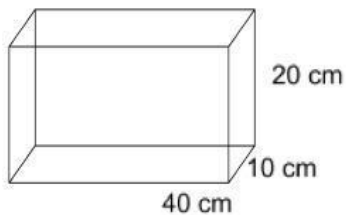
Asked: $P = \dots\dots\dots?$

Solution

$$P = \frac{W}{A} =$$

Look at the following figure.

If the box is 400 N , calculate the maximum and minimum pressure of the box on the floor.



Given that :

$$A_1 = \quad \times \quad = \quad \text{cm}^2 = \quad \text{m}^2$$

$$A_2 = \quad \times \quad = \quad \text{cm}^2 = \quad \text{m}^2$$

$$A_3 = \quad \times \quad = \quad \text{cm}^2 = \quad \text{m}^2$$

Asked : P_{max} and $P_{\text{min}} = \dots\dots\dots?$

Solution

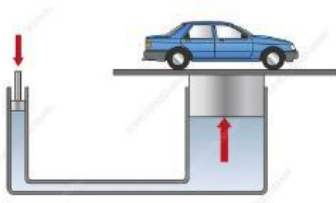
$$P_1 = \frac{W}{A_1} =$$

$$P_2 = \frac{W}{A_2} =$$

$$P_3 = \frac{W}{A_3} =$$

$$P_{\text{max}} = \quad \text{Pa}$$

$$P_{\text{min}} = \quad \text{Pa}$$



Look at the following figure

A hydraulic press system has two pistons. The small one has cross-sectional area of $0,025 \text{ m}^2$ and the large one has cross-sectional area of $0,6 \text{ m}^2$. If a force of 40 N is applied to the small piston, find the maksimum weight of the car that can be carried by the big pistons.

Given that :

$$A_1 = \quad \text{m}^2$$

$$A_2 = \quad \text{m}^2$$

$$F_1 = \quad \text{N}$$

Asked: F_2 or $w = \dots\dots\dots$?

$$\frac{F_1}{A_1} = \frac{F_2}{A_2} = \frac{w}{A_2}$$

$$\quad = \quad$$

$$\quad = \quad \gg = \quad w \quad = \quad$$

$$w = \quad \text{N}$$

A jar of water with 15 cm of height. Find the pressure of water at the bottom of the jar, ignore the atmospheric pressure and use the acceleration due to gravity $g = 10 \text{ m/s}^2$ and the density of water 1000 kg/m^3



Given that :

$$h = \quad \text{cm} = \quad \text{m}$$

$$g = \quad \text{m/s}^2$$

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

Asked : $P_h = \dots\dots\dots$?

Solution

$$P_h = \quad = \quad = \quad \text{Pa}$$

