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 = cm^2 = m^2

W = N

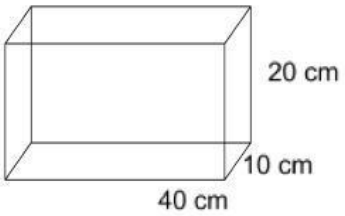
Asked: P = ……..?

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 = x = cm^2 = m^2

A_2 = x = cm^2 = m^2

A_3 = x = cm^2 = m^2

Asked : P_{max} and P_{min} = …..?

Solution

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

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

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

P_{max} = Pa

P_{min} = Pa

Look at the following figure

A hydraulic press system has two pistons. The small one has cross-sectional area of 0,025 m^2 and the large one has cross-sectional area of 0,6 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 = m^2

A_2 = m^2

F_1 = N

Asked: F_2 or w =.....?

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

——— = ———

——— = ——— >>= w . =

w = 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 m/s^2 and the density of water 1000 kg/m^3

Given that :

h = cm = m

g = m/s^2

ϱ = kg/m^3

Asked : P_h = ...?

Solution

P_h = . . = . . = Pa