

Pressure Questions

Name

$$\text{pressure} = \text{force} \div \text{area}$$

1. A book weighing 1.2 N is 12cm wide and 16cm long. What pressure does it exert on the table it is lying on?

2. A dancer (who weighs 600 N) accidentally steps on her partner's foot with her heel. The area of her shoe heel is 1 cm^2 , and she puts all her weight on it. What pressure does this exert on her partner's foot?

3. Calculate the pressure exerted on the floor when an elephant weighing 30,000 N stands on two feet, which each have an area of 0.1 m^2 .

4. A man on a snowboard exerts a pressure of 0.25 N/cm^2 on the snow. If the man weighs 750 N, what is the area of his snowboard?

5. A car exerts a pressure of 200,000 Pa on the road. The total area of the tyres in contact with the road is 0.1 m^2 . What is the weight of the car?

6. Water with a pressure of 500 kPa pushes on the porthole of a submarine. If the force on the porthole is 125,000 N, what is the area of the porthole?

7. An ice hockey puck weighs 1.6N and has a diameter of 7.6cm. If it lies flat on the ice, what pressure does it exert on the ice? (Extra: what if it lies on its side???)