

PRESSURE, FORCE AND AREA – PRACTICE QUESTIONS
CALCULATOR ALLOWED



1.

Find the pressure exerted by a force of 600 Newtons on an area of 30 m^2 .

Give your answer in N/m^2 .

2.

An object is placed on a floor.

The area of the object in contact with the floor is 3 m^2 .

The pressure exerted by the object is 15 N/m^2 .

Find the force exerted by the object on the floor, in Newtons.

3.

A box exerts a force of 240 Newtons on a table.

The pressure exerted on the table is 80 N/m^2 .

Find the area of the box in contact with the table, in m^2 .

4.

Find the pressure exerted by a force of 72 Newtons on an area of 6 m^2 .

Give your answer in N/m^2 .

5.

An object exerts a force of 800 Newtons on a floor.

The pressure exerted on the floor is 160 N/m^2 .

Find the area of the object in contact with the floor, in m^2 .

6.

An object is placed on a table.

The area of the object in contact with the table is 1.8 m^2 .

The pressure exerted by the object is 60 N/m^2 .

Find the force exerted by the object on the table, in Newtons.

7.

A crate is placed on a pallet.

The crate exerts a force of 1,200 Newtons on the pallet.

The area of the crate in contact with the pallet is 16 m^2 .

Find the pressure exerted by the crate on the pallet, in N/m^2 .

8.

A dumbbell is placed on a floor.

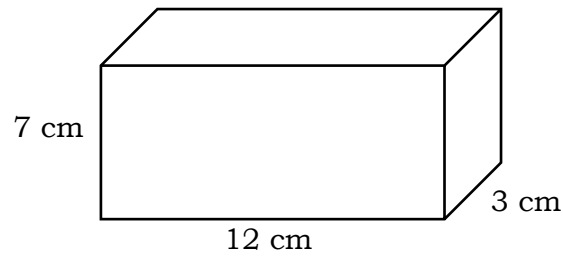
The area of the dumbbell in contact with the floor is 0.4 m^2 .

The pressure exerted by the safe is 190 N/m^2 .

Find the force exerted by the dumbbell on the floor, in Newtons.

9.

Pictured below is a box.

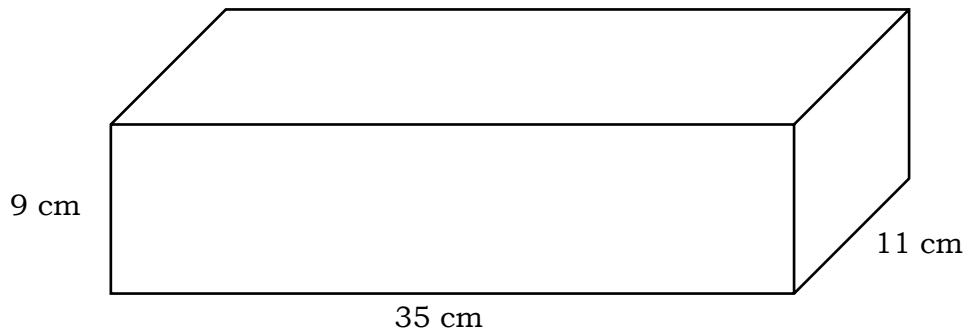


The force exerted by the box on the floor is 9 Newtons.

Find the pressure exerted by the box on the floor, in N/cm^2 .

10.

Pictured below is a box.

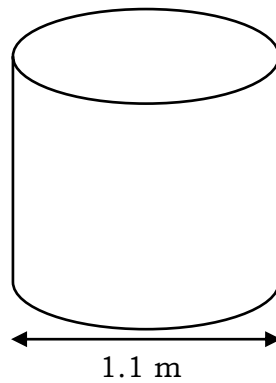


The pressure exerted by the box on the floor is $1.2 \text{ N}/\text{cm}^2$.

Find the force exerted by the box on the floor, in Newtons.

11.

Pictured below is a cylinder.

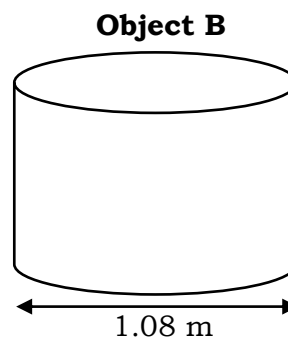
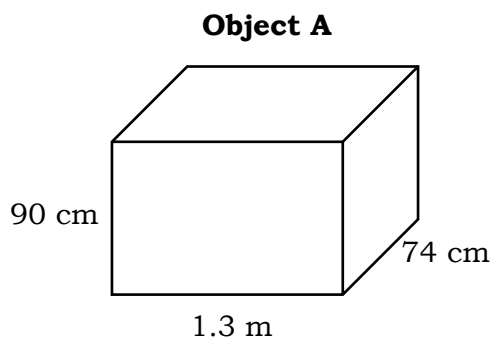


The pressure exerted by the cylinder on the floor is 17.5 N/m^2 .

Find the force exerted by the cylinder on the floor, in Newtons.
Give your answer to 2 significant figures.

12.

Pictured below are two objects – Object A and Object B.



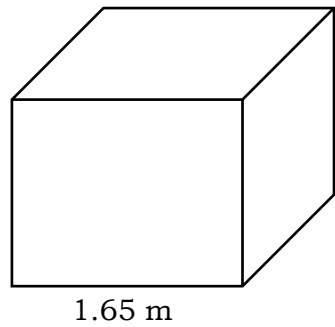
The force exerted by Object A on the floor is 1,980 Newtons.

The force exerted by Object B on the floor is 1,850 Newtons.

Which object exerts the largest pressure on the floor – Object A or Object B?

13.

Pictured below is a cube.

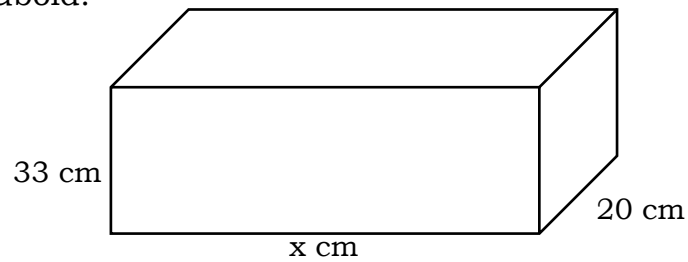


The cube exerts a pressure of 0.033 N/cm^2 on the ground.

Find the force exerted by the cube on the ground, in Newtons.
Give your answer to 3 significant figures.

14.

Pictured below is a cuboid.

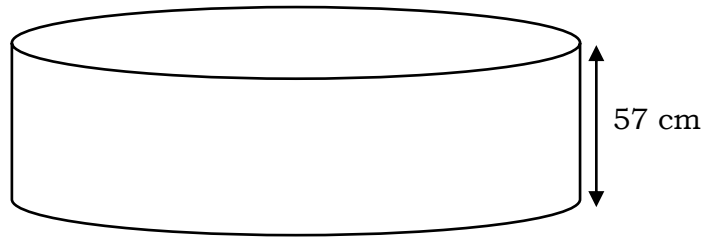


The cuboid exerts a pressure of 1.2 N/cm^2 and a force of 1,550 Newtons on the ground.

Find x , to 2 significant figures.

15.

Pictured below is a cylinder.

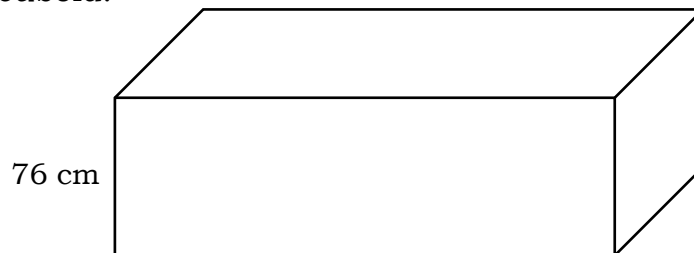


The cylinder exerts a pressure of 98 N/m^2 and a force of 2,535 Newtons on the ground.

Find the volume of the cylinder, giving your answer in m^3 to 2 significant figures.

16.

Pictured below is a cuboid.



The cuboid exerts a pressure of 0.88 kiloPascals (kPa) and a force of 4,500 Newtons on the ground.

$$1 \text{ kPa} = 1,000 \text{ N/m}^2$$

Find the volume of the cuboid, giving your answer in m^3 to 3 significant figures.