

BASIC PHYSICS PAST PAPERS QUESTIONS OCR ALEVEL YEAR 1

1.

- (a) Draw a line from each unit on the left-hand side to the correct equivalent unit on the right-hand side.

joule (J)	kg m s^{-2}
watt (W)	N m
newton (N)	J s^{-1}

[2]

- (b) This question is about estimating the pressure exerted by a person wearing shoes standing on a floor, see Fig. 1.1.

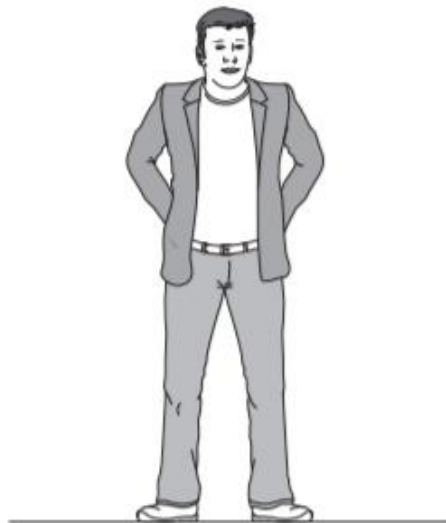


Fig. 1.1

- (i) Estimate the weight in newtons of a person.

weight = N [1]

- (ii) Estimate the total area of contact in square metres between the shoes of this person and the floor.

area = m² [1]

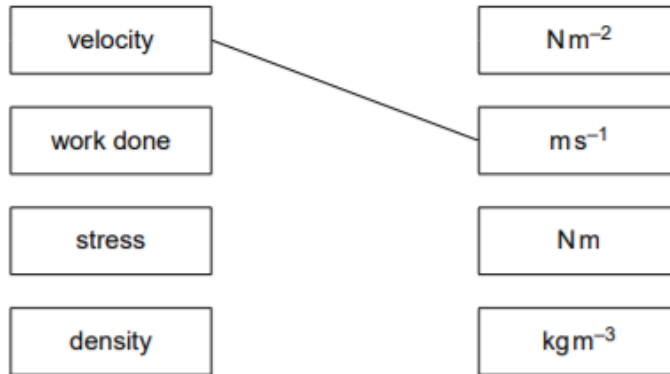
- (iii) Hence estimate the pressure in pascals exerted by this person standing on the floor.

pressure = Pa [1]

[Total: 5]

2.

(a) Draw a straight line from each quantity on the left hand side to its correct unit on the right hand side; one has already been done for you.



(b) Fig. 1.1 shows a metal cube which rests on a table.

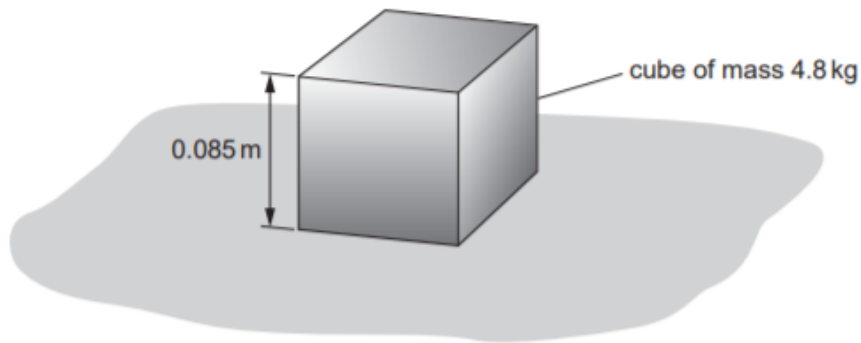


Fig. 1.1

The mass of the metal cube is 4.8 kg. Each side of the cube has length 0.085 m. The cube exerts pressure on the table.

(i) Complete the sentence below:

The force acting on the table is due to the of the metal cube. [1]

(ii) Calculate the pressure exerted on the table by the metal cube.

pressure = Pa [2]

- (iii) The metal cube shown is replaced by a second cube made of the same material but with each side of double the length of the original cube.

Complete the sentences below for the second cube when compared with the original cube.

The mass of the second cube is times greater than the original cube.

The cross-sectional area of the base is times greater than the original cube.

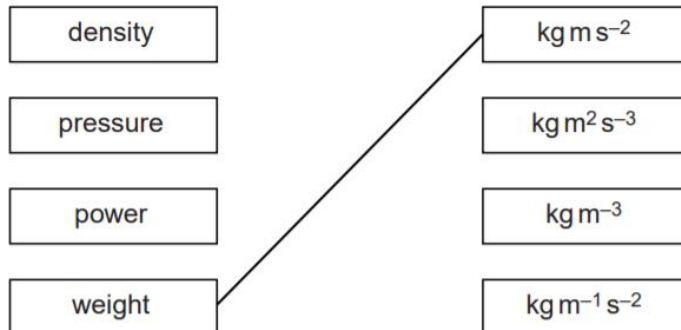
Hence, the pressure exerted by this cube is times greater than the original cube.

[3]

[Total: 8]

3.

Draw a line from each quantity on the left-hand side to the correct unit on the right-hand side. One quantity (weight) has already been matched to its unit.



[2]

[Total: 2]