

O Level Pure Physics MCQs

Mass, Weight and Density Test 2.0

Q1

11. The initial density of a metal ball is 15.0 g cm^{-3} . When a hole of volume 1.0 cm^3 is drilled into the ball, what will its final density be?

- A 14.0 g cm^{-3}
- B 15.0 g cm^{-3}
- C 16.0 g cm^{-3}
- D Not able to determine.

Q2

Which statement about mass and weight is correct?

- A A mass experiences a weight due to a gravitational field.
- B Mass and weight are different types of force.
- C Mass and weight have the same unit.
- D When an object expands, its mass changes but its weight stays the same.

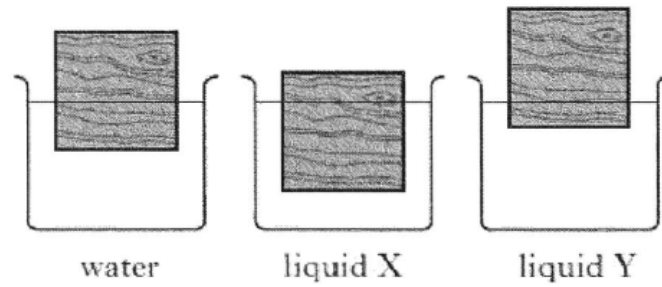
Q3

An astronaut lands on a planet where the acceleration of free fall at its surface is greater than that on the Earth. Which of the following will be the same as on the Earth?

- A the ease in changing the motion of a moving ball.
- B the maximum height reached by the astronaut when he jumps.
- C the period of oscillation of a simple pendulum.
- D the weight of the astronaut as measured by a spring balance.

Q4

Three identical blocks of wood are floating in different liquids as shown.



A student makes the following statements.

- I The density of the wood is less than the density of water.
- II The density of liquid X is less than the density of water.
- III The density of liquid X is greater than the density of liquid Y.

Which of the statements is/are correct?

- A** I only **B** II only **C** I & II only **D** I & III only

Q5

Which relationship defines gravitational field strength?

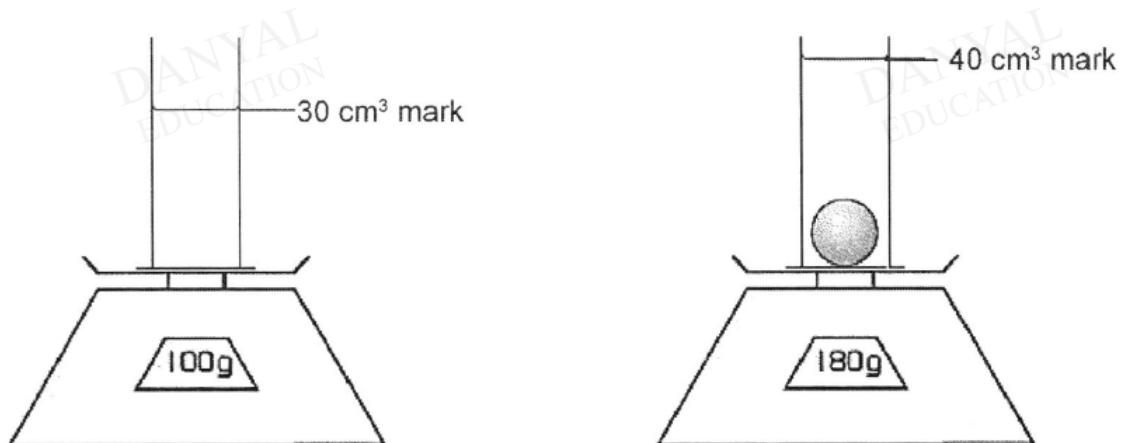
- A** mass \times 10
- B** mass \times weight
- C** mass / weight
- D** weight / mass

Q6

A measuring cylinder containing some water stands on a scale pan. A solid ball is lowered into the water.

The water level rises from the 30 cm³ mark to the 40 cm³ mark.

The scale reading increases from 100 g to 180 g.



What is the density of the material of the ball?

- A** 2.0 g cm⁻³ **B** 4.5 g cm⁻³ **C** 8.0 g cm⁻³ **D** 18 g cm⁻³

Q7

Which of the following rectangular objects has the lowest density?

Object	Length / cm	Breadth / cm	Height / cm	Mass / g
A	3	4	3	350
B	5	4	4	480
C	5	4	3	500
D	10	5	2	800

Q8

When a balloon is released, it rises in the air. It will eventually stop rising once it reaches a certain height H from the ground. Why is this so?

- A The gravitational force acting on the balloon is higher at H than on Earth.
- B The normal contact force on the balloon becomes zero.
- C The density of the air in the balloon is the same as the density of the atmosphere at H .
- D The size of the balloon decreases due to a decrease in its weight.

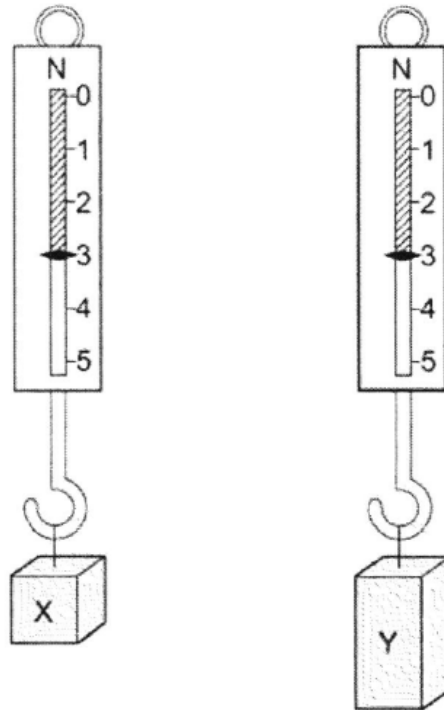
Q9

An astronaut lands on a planet which has a higher gravitational field strength than Earth. Which of the following will be the same as on Earth?

- A The period of oscillation of a simple pendulum
- B The ease of changing the motion of a swinging can filled with sand
- C The height reached by the astronaut when he jumps with the same initial velocity
- D The weight of the astronaut as measured by a spring balance

Q10

Two blocks of metals X and Y hang from spring balances, as shown in the diagrams.



What do the diagrams show about X and Y?

- A They have the same mass and the same volume but different weights.
- B They have the same mass and the same weight but different volumes.
- C They have the same mass, the same volume and the same weight.
- D They have the same weight and the same volume but different masses.

Answers

Mass, Weight and Density Test 2.0

- Q1 B
- Q2 A
- Q3 A
- Q4 C
- Q5 D
- Q6 C
- Q7 B
- Q8 C
- Q9 B
- Q10 B

DANYAL
EDUCATION

DANYAL
EDUCATION

DANYAL
EDUCATION

DANYAL
EDUCATION

DANYAL
EDUCATION