

## **GCSE Physics A (Gateway)**

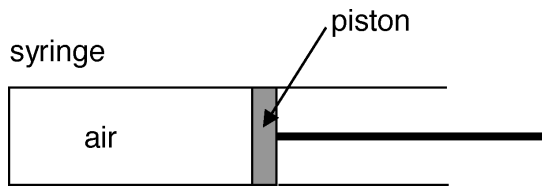
**J249/01 Physics A P1-P4 and P9 (Foundation Tier)**

### **Question Set 25**

Multiple Choice Questions

P1: Matter

1 A syringe contains air.



The piston is pushed inwards.

How do the pressure and volume of the air in the syringe change?

	Pressure	Volume
A	decreases	decreases
B	decreases	increases
C	increases	decreases
D	increases	increases

$$P \propto \frac{1}{V}$$

Your answer

C

[1]

2 A sealed can contains gas.

The can is heated and the pressure of the gas increases.

How do the gas particles cause this increase in pressure?

- A The average distance between the particles increases.
- B The particles expand.
- C The particles hit each other more frequently.
- D The particles hit the can more frequently.

Your answer

D

[1]

3 These statements are about pressure and volume of a gas.

Which statement is correct?

- A Volume doubles, pressure doubles
- B Volume doubles, pressure halves
- C Volume halves, pressure halves
- D Volume halves, pressure stays constant

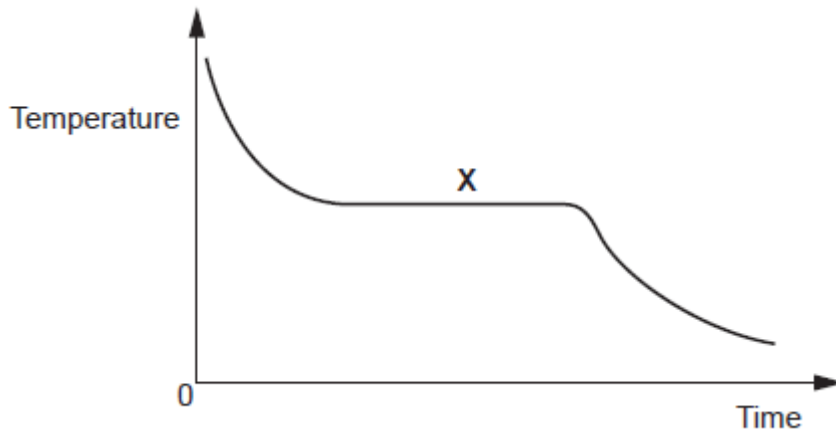
$$P \propto \frac{1}{V}$$

Your answer

B

[1]

4 A student studies how the temperature falls when a liquid cools.



What is happening at point X on the graph?

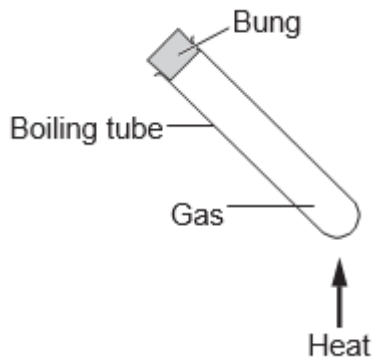
- A Boiling
- B Freezing
- C Melting
- D Subliming

Your answer

B

[1]

- 5 A sealed boiling tube contains gas.



The boiling tube is heated.

What happens?

- A The particles in the gas evaporate.
- B The particles in the gas expand.
- C The particles in the gas move faster.
- D The particles in the gas move slower.

Your answer

C

[1]

- 6 Different states of matter have different densities.

Which of the following shows the states of matter in density order, starting with the lowest density?

- A Solid – liquid – gas
- B Solid – gas – liquid
- C Gas – liquid – solid
- D Liquid – gas – solid

Your answer

C

[1]

7 A cylinder contains a gas.

The volume of the gas is halved and the temperature remains the same.

What happens to the pressure of the gas?

A It remains the same.

B It halves.

C It doubles.

D It quadruples.

$$P \propto \frac{1}{V}$$

$$P \propto \frac{1}{\frac{1}{2}V} \propto \frac{2}{V}$$

Your answer

C

[1]

8 An object has a volume of  $1.5 \text{ m}^3$  and a mass of  $3.0 \text{ kg}$ .

What is the density of the object?

Use the equation: density = mass  $\div$  volume

A  $0.5 \text{ kg/m}^3$

B  $2.0 \text{ kg/m}^3$

C  $4.5 \text{ kg/m}^3$

D  $6.0 \text{ kg/m}^3$

$$\frac{3.0}{1.5} = 2$$

Your answer

B

[1]

**Total Marks for Question Set 25: 8**

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