

Answer **all** the questions in the spaces provided.

- 1 (a) (i) Define *density*.

.....
.....

- (ii) State the base units in which density is measured.

.....

[2]

- (b) The speed v of sound in a gas is given by the expression

$$v = \sqrt{\left(\frac{\gamma p}{\rho}\right)},$$

where p is the pressure of the gas of density ρ . γ is a constant.

Given that p has the base units of $\text{kg m}^{-1}\text{s}^{-2}$, show that the constant γ has no unit.

[3]