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

**1** **(a)** The diameter $d$ of a cylinder is measured as 0.0125 m ± 1.6%.

Calculate the absolute uncertainty in this measurement.

absolute uncertainty = ..... m [1]

**(b)** The cylinder in **(a)** stands on a horizontal surface. The pressure $p$ exerted on the surface by the cylinder is given by

$$p = \frac{4W}{\pi d^2}.$$

The measured weight $W$ of the cylinder is 0.38 N ± 2.8%.

**(i)** Calculate the pressure $p$.

$p$ = ..... $\mathrm{N\,m^{-2}}$ [1]

**(ii)** Determine the absolute uncertainty in the value of $p$.

absolute uncertainty = ..... $\mathrm{N\,m^{-2}}$ [2]

[Total: 4]



**[Turn over**