

### Exercise 1.41 – Gas laws – essential units

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**Q1401-01** Calculate the temperature in degrees Celsius of a gas at 240 K.

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**Q1401-02** A liquid boils at 79°C, what is its boiling point in Kelvin?

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**Q1401-03** How many litres does a 100 cm<sup>3</sup> gas syringe hold?

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**Q1401-04** A person's normal breath takes in about 0.5 litres of air. Calculate the volume of air in m<sup>3</sup> breathed in 1 day's normal activity if 12 breaths are taken every minute.

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**Q1401-05** If the average temperature during the day is 22°C, what is the temperature in absolute temperature units?

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**Q1401-06** What volume in litres is needed to store 50 m<sup>3</sup> of an ideal gas?

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**Q1401-07** If a low pressure isobar on a weather map registers 0.90 atmospheres, what is the pressure in Pascals?

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**Q1401-08** One of the old units for pressure is the Torr, named after Torricelli. Atmospheric pressure at STP is equivalent to 760 Torr. What is the pressure in kPa when the pressure is 720 Torr?

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**Q1401-09** If the boiling point of ethanol is 352 Kelvin, what is it in degrees Celsius?

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**Q1401-10** If a gas syringe contains 0.0024 dm<sup>3</sup> of gas, what does it contain in centimetres cubed?

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