2 The air in a car tyre has a constant volume of $3.1 \times 10^{-2}\,m^3$. The pressure of this air is $2.9 \times 10^5\,Pa$ at a temperature of 17 °C. The air may be considered to be an ideal gas.

(a) State what is meant by an *ideal* gas.

.....

.....

..... [2]

(b) Calculate the amount of air, in mol, in the tyre.

amount = ... mol [2]

(c) The pressure in the tyre is to be increased using a pump. On each stroke of the pump, 0.012 mol of air is forced into the tyre.
Calculate the number of strokes of the pump required to increase the pressure to $3.4 \times 10^5\,Pa$ at a temperature of 27 °C.

number = ... [3]