$2Zn + 2HNO_3 \rightarrow 2ZnNO_3 + H_2$

$n = \frac{V}{MV}$

Question 26 (4 marks)

A gas is produced when 10.0 g of zinc is placed in 0.50 L of 0.20 mol L^{-1} nitric acid. **4**

Calculate the volume of gas produced at 25°C and 100 kPa. Include a balanced chemical equation in your answer.

$2Zn_{(s)} + 2HNO_{3(aq)} \rightarrow 2ZnNO_{3(aq)} + H_{2(g)}$

10g 0.50L 0.20

$mole_{Zn} = \frac{10}{65.41}$

$= 0.153$

$mole_{HNO_3} = 0.5 \times 0.2$

$= 0.1$

$mass_{ZnNO_3} = 0.153 \times 127.42$

$= 19.5$

$mole_{ZnNO_3} = 0.153$

$\therefore$ Volume = mole × MV

$= 0.153 \times 24.79$

$= 3.79$