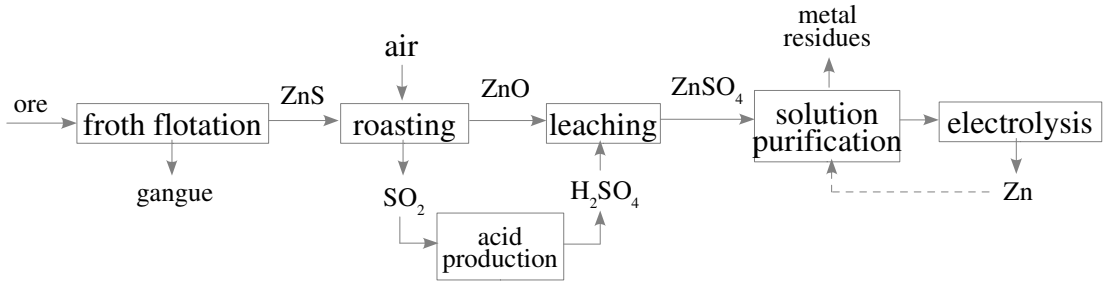
Year 12 Chemistry

Quick Quiz: Using and Controlling Reactions

1.

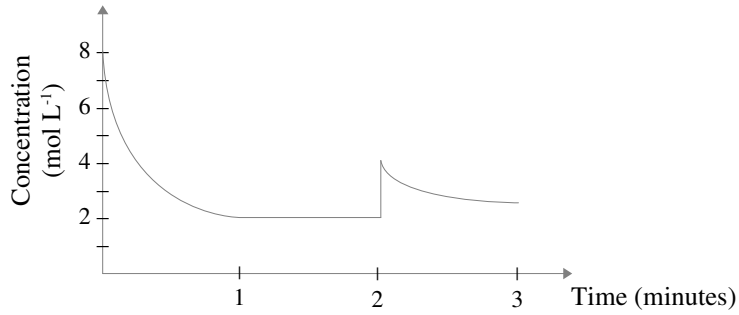


2.

(a)

	N_2	H_2	NH_3
initial	2	4	0
final	1	1	2
change	-1	-3	+2

(b)



3. The forward and backward reactions are occurring at equal rate (the concentrations of reactants and products have ceased to change with time).

4. $M_{CH_4} = 12.01 + (1.008 \times 4) = 16.052 \text{ g mol}^{-1}$

$\Delta H = 891 \text{ kJ mol}^{-1}$

$\therefore 891 \div M = 55 \text{ kJ g}^{-1}$

$E = 4.0 \times 55 = 222 \text{ kJ} = 2.22 \times 10^5 \text{ J}$

$E = mc_p\Delta T$

$$\therefore m = \frac{E}{c_p\Delta T} = \frac{2.22 \times 10^5}{4.18 \times 40} = 1300 \text{ g}$$

$\therefore 1.3 \text{ L}$