

Chemistry  
UNIT: 4CH1  
Science (Double Award) 4SD0  
PAPER: 1C

Diagram Booklet

In the boxes below, write your name, centre number and candidate number.

Surname					
Other names					
Centre Number					
Candidate Number					

## INSTRUCTIONS

There may be spare copies of some diagrams in case you need them.

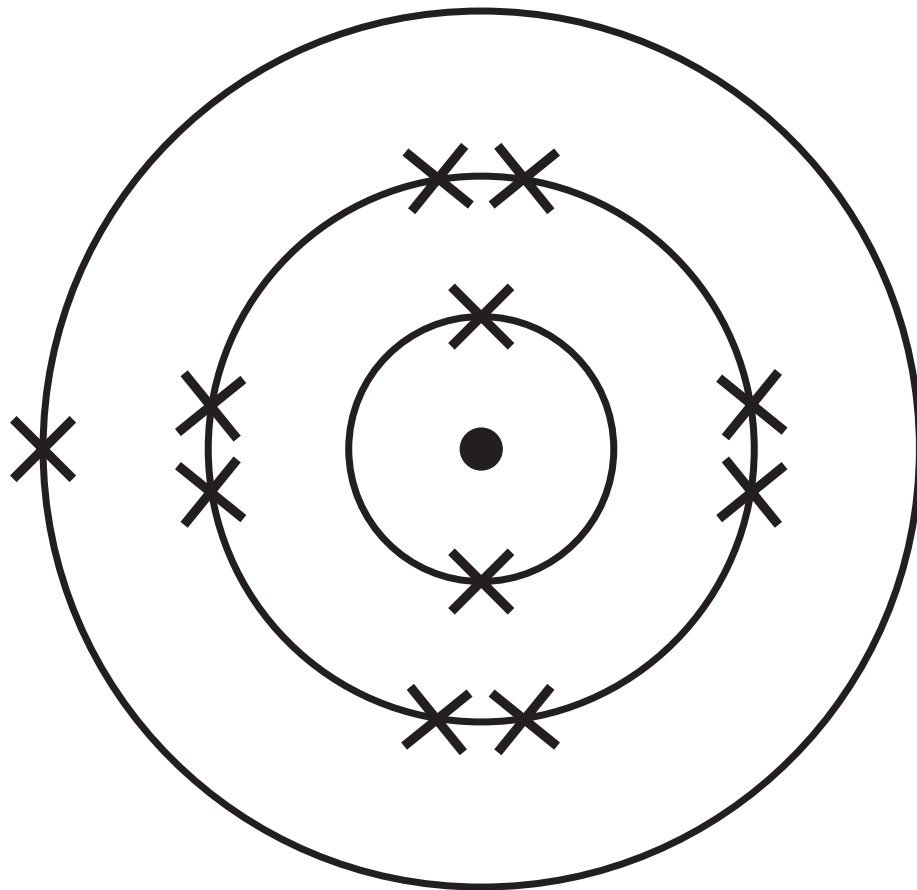
**THIS DIAGRAM BOOKLET MUST BE RETURNED WITH THE QUESTION PAPER AT THE END OF THE EXAMINATION.**

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## Question 1



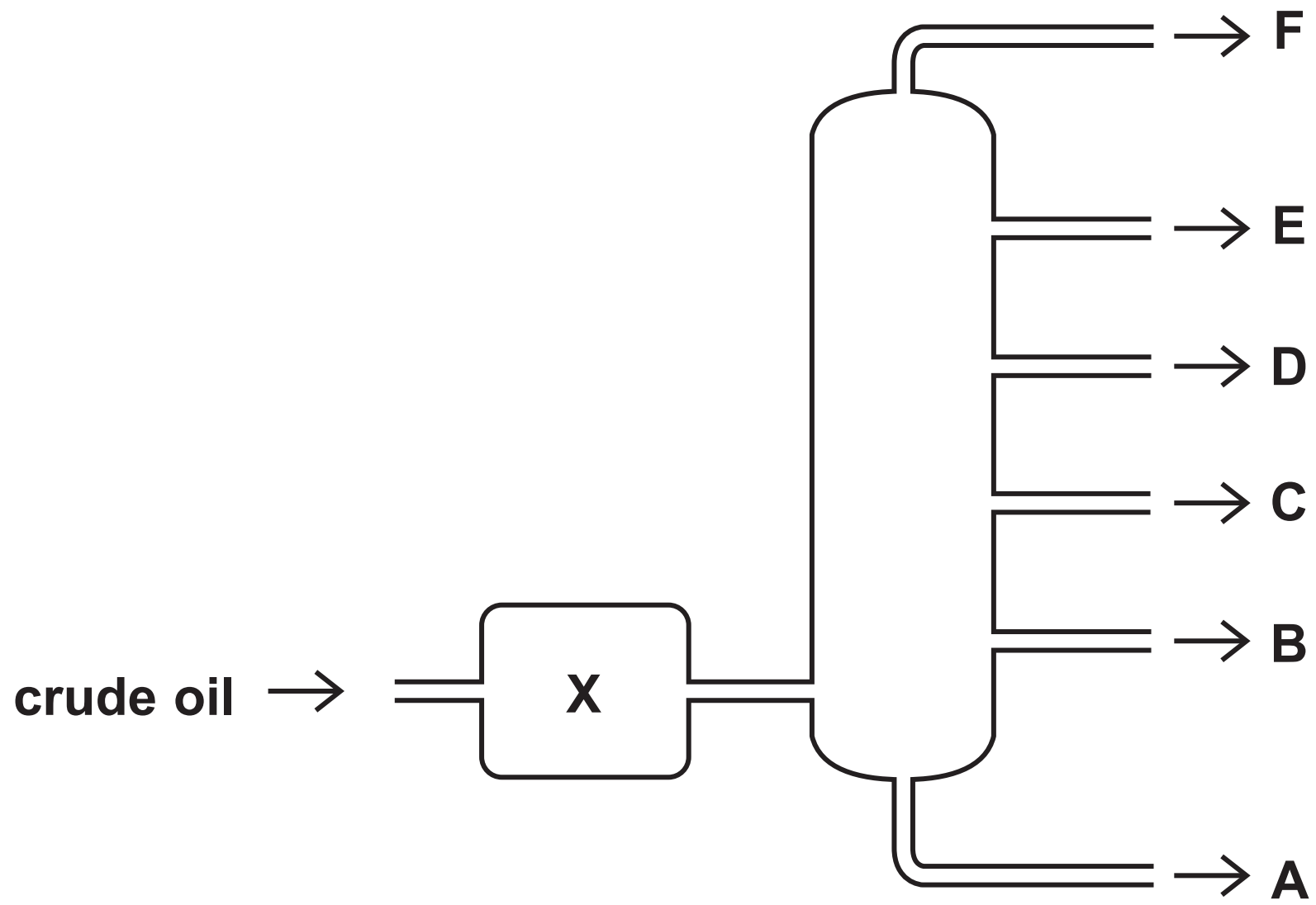
**Question 2(a)**

<b>Physical change</b>	<b>Change of state</b>
<b>water to ice</b>	
<b>steam to water</b>	
<b>solid wax to liquid wax</b>	
<b>iodine crystals to iodine vapour</b>	

**Question 2(a)**

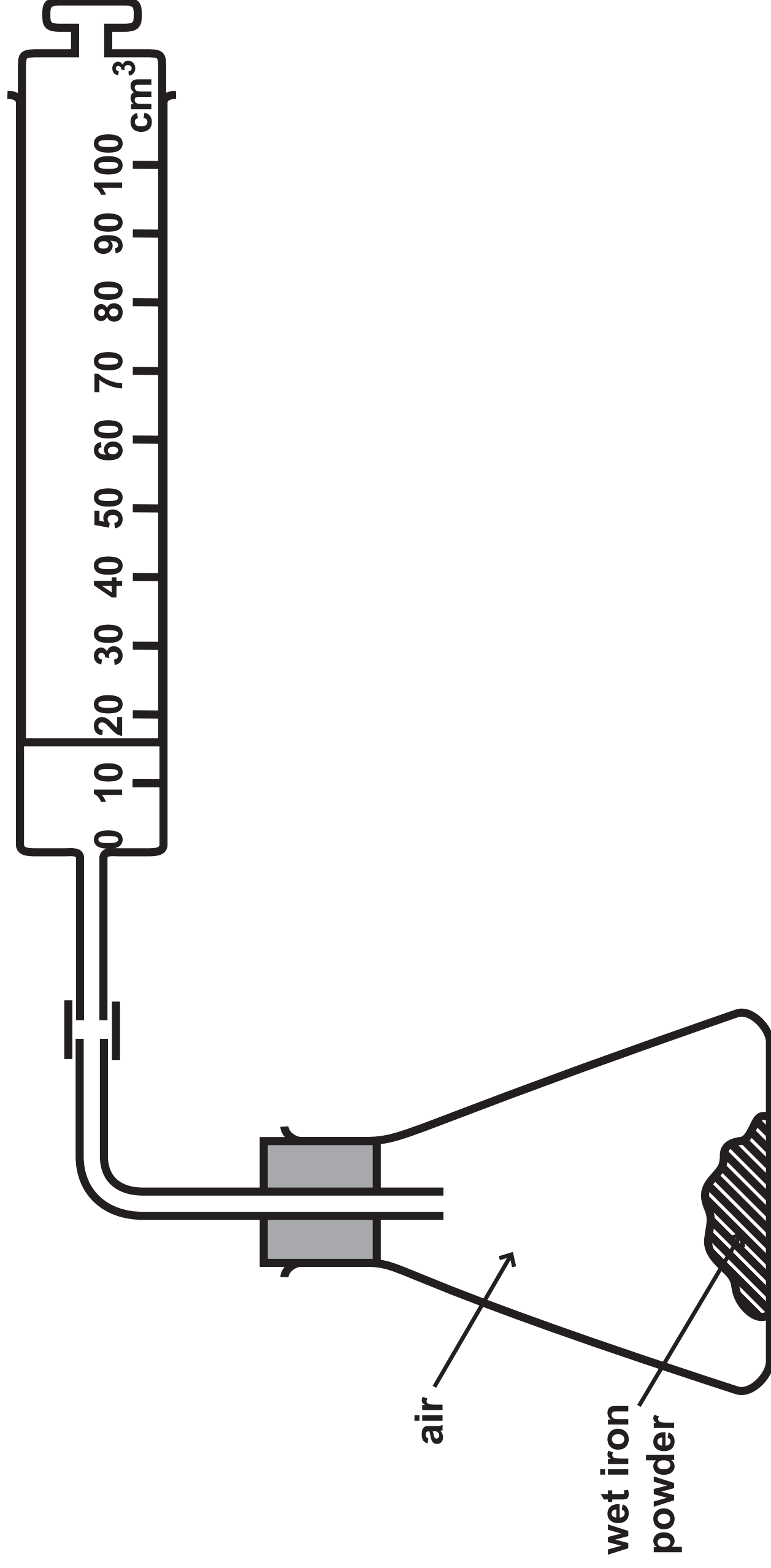
<b>Physical change</b>	<b>Change of state</b>
<b>water to ice</b>	
<b>steam to water</b>	
<b>solid wax to liquid wax</b>	
<b>iodine crystals to iodine vapour</b>	

## Question 3(a)



Question 4(a)

8





Question 4(b)

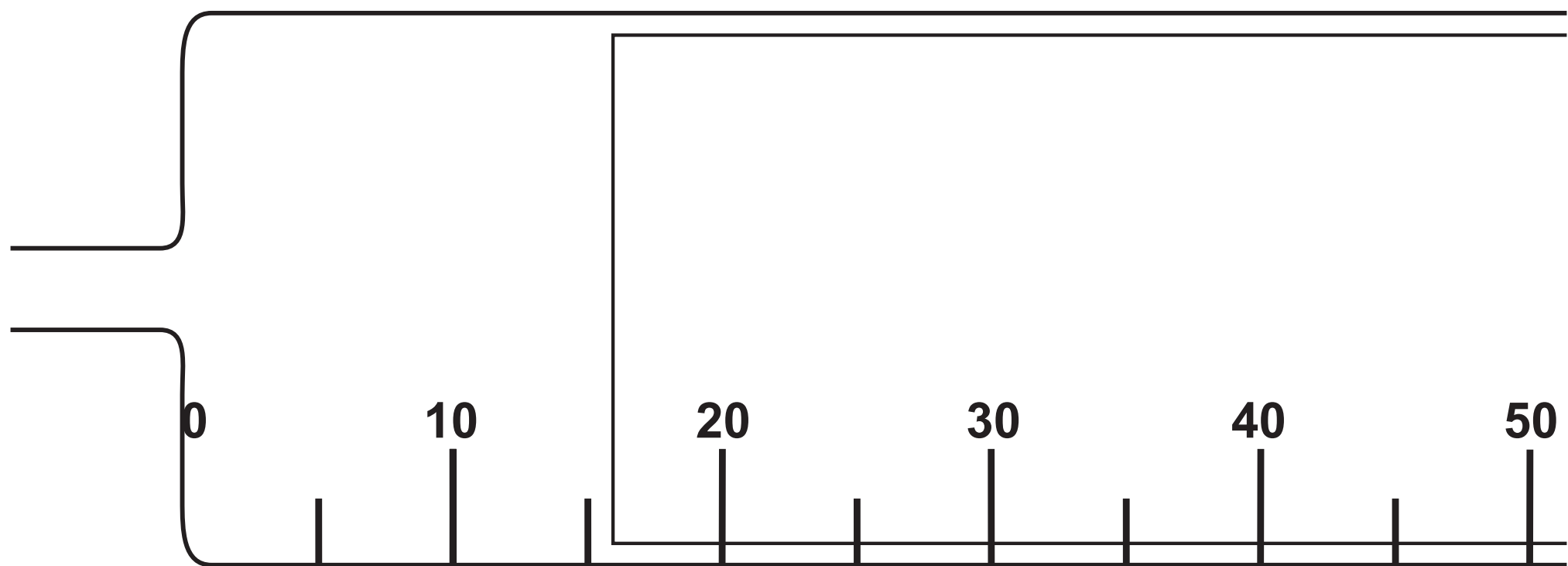


TABLE 1

syringe reading at start	
syringe reading at end	
change in volume in cm <sup>3</sup>	65

Question 4(b)

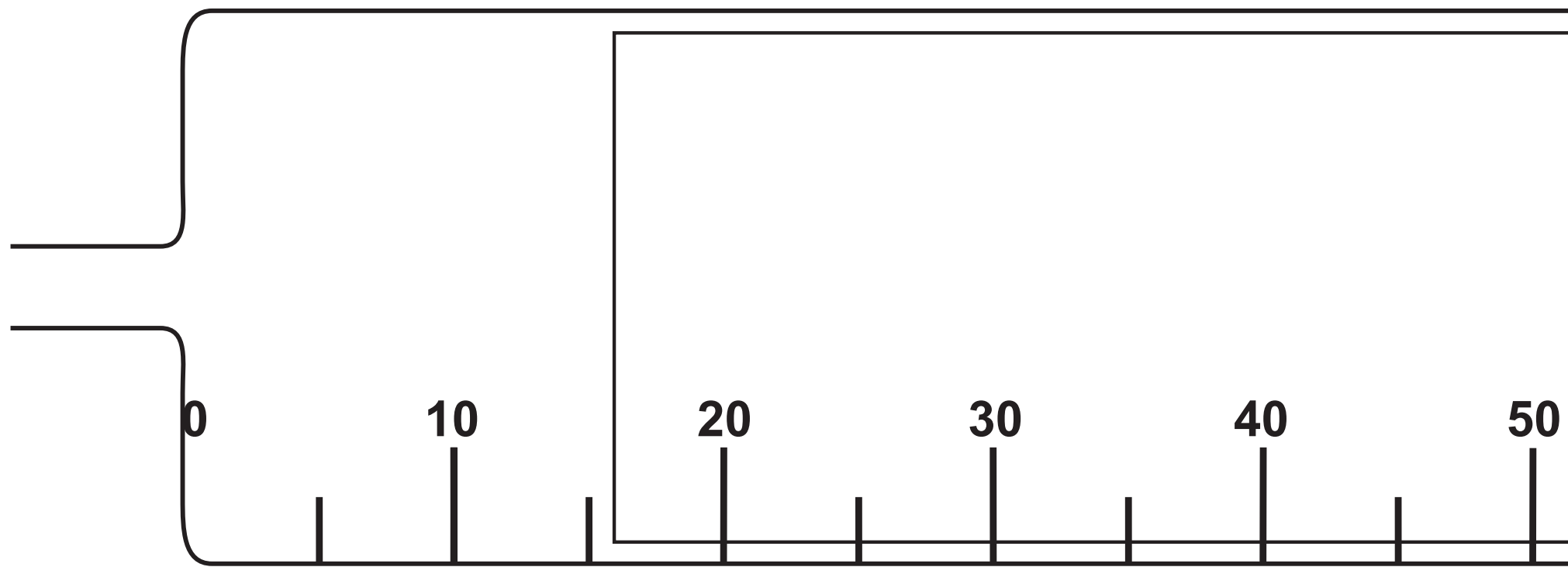


TABLE 1

syringe reading at start	
syringe reading at end	
change in volume in cm <sup>3</sup>	65

Question 4(c)

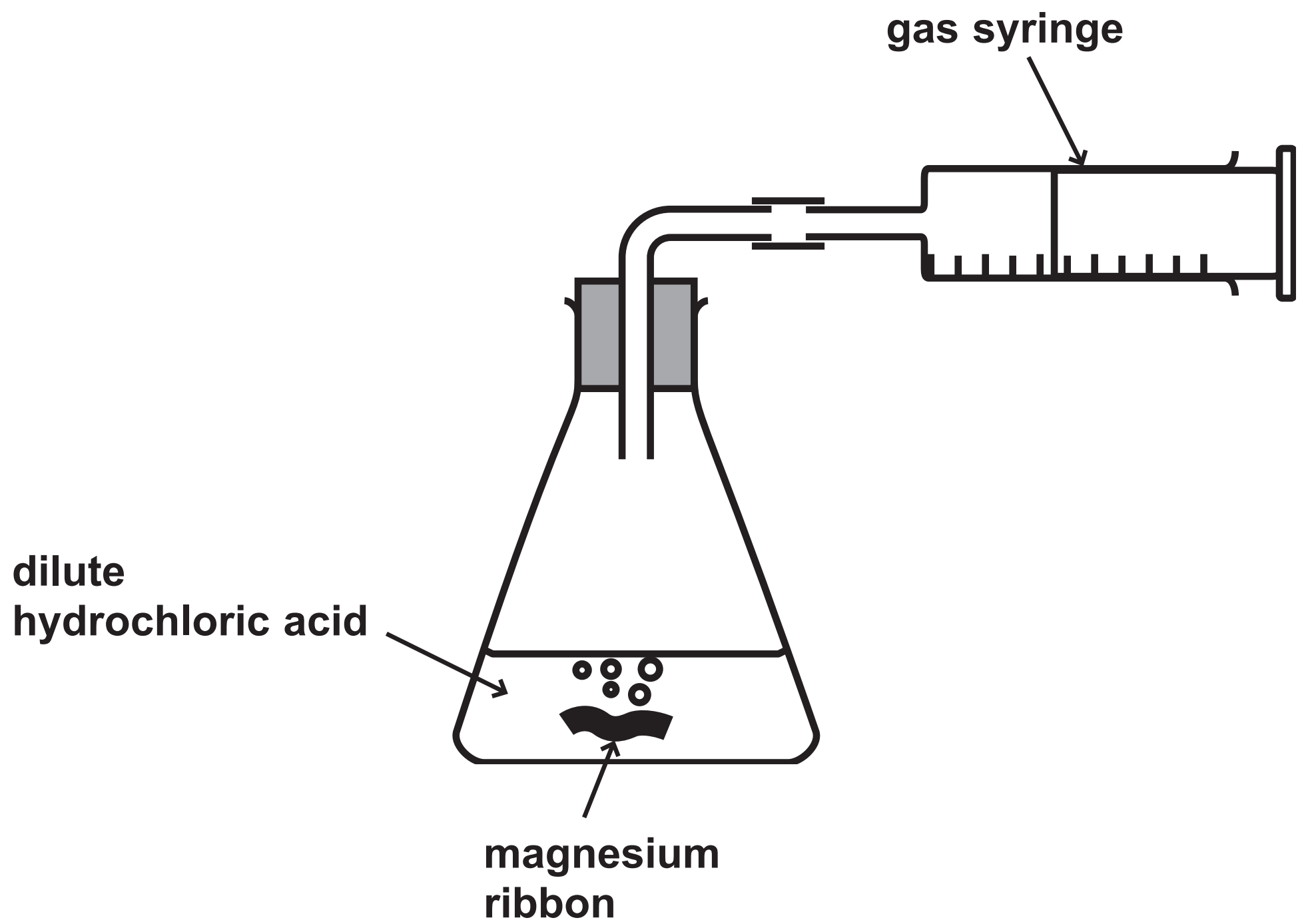
TABLE 2

volume of air in conical flask and glass tube in cm <sup>3</sup>	260
syringe reading at start	90
syringe reading at end	22

**Question 5(a)(iv)****Isomer 1****Isomer 2**

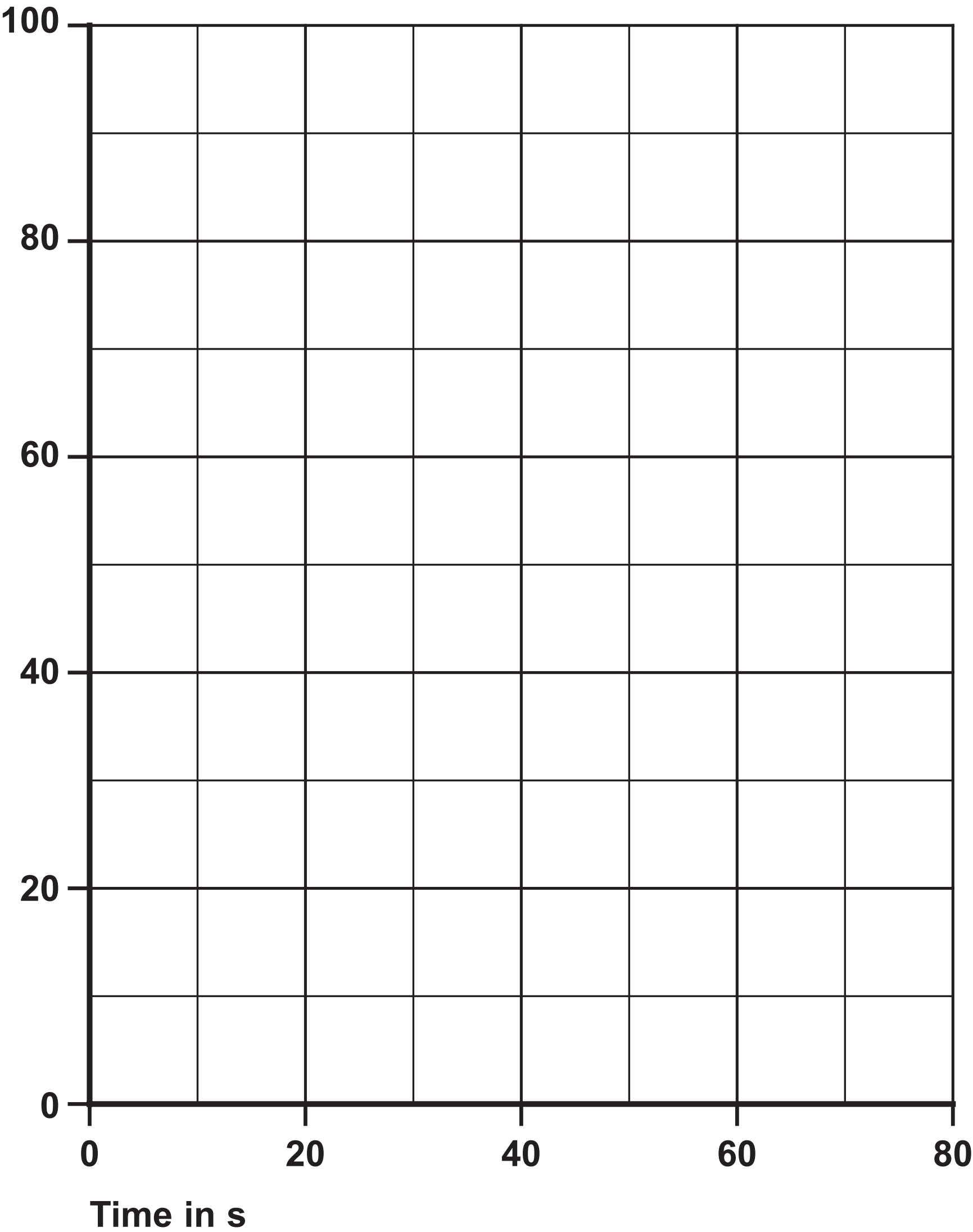
**Question 5(a)(iv)****Isomer 1****Isomer 2**

## Question 6



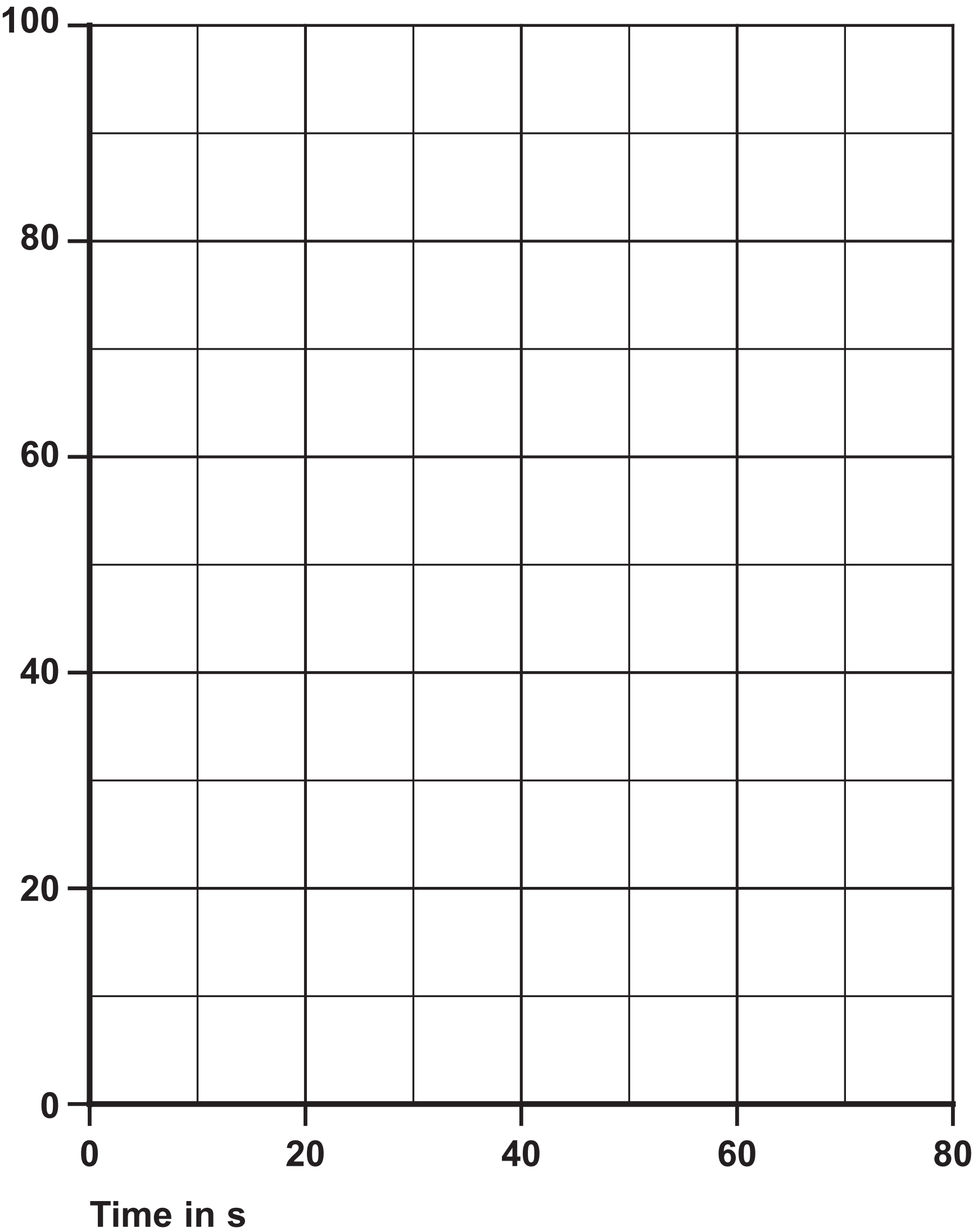
Question 6(b) and 6(c)

Volume of  
hydrogen in cm<sup>3</sup>



Question 6(b) and 6(c)

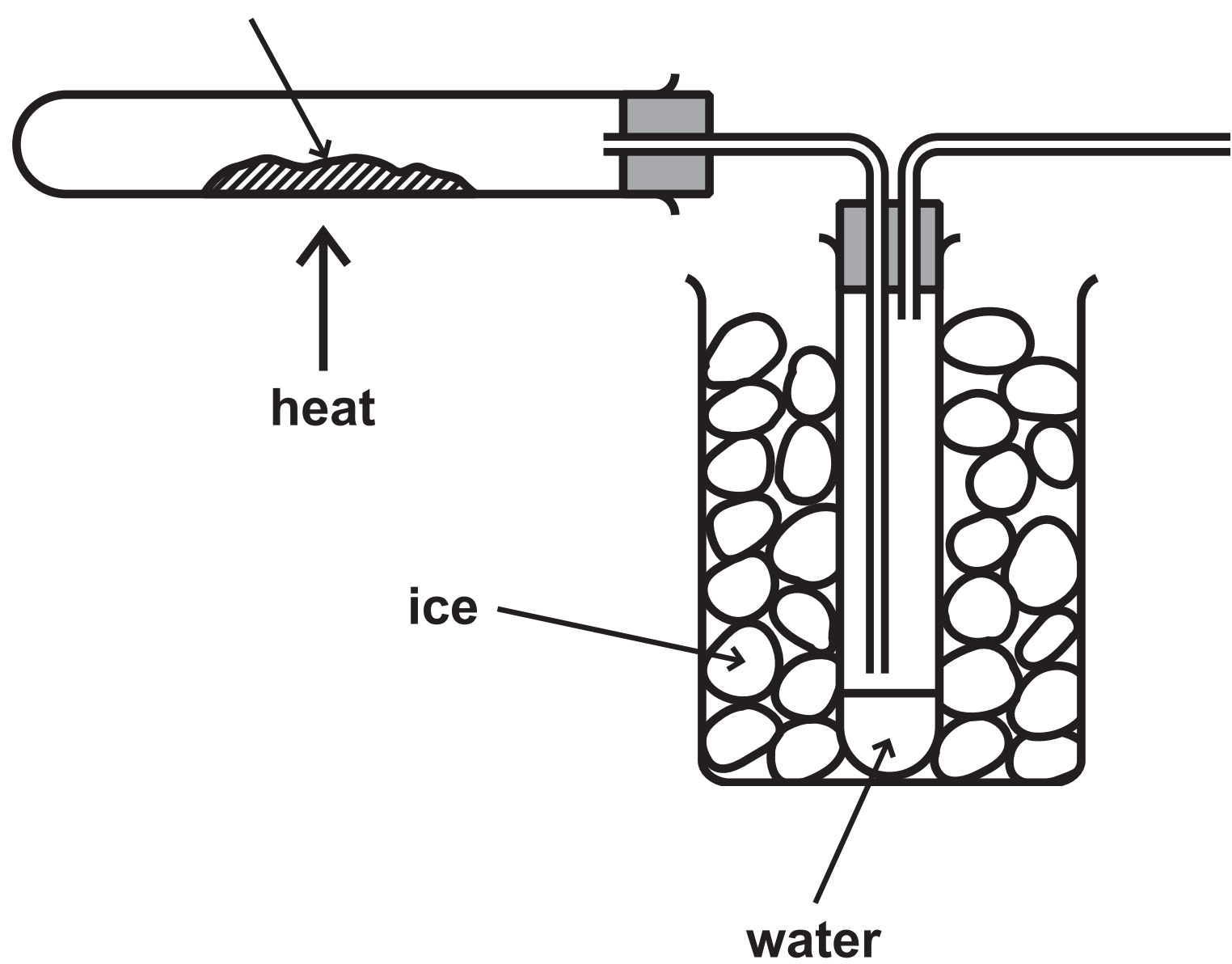
Volume of  
hydrogen in cm<sup>3</sup>





Question 7(c)

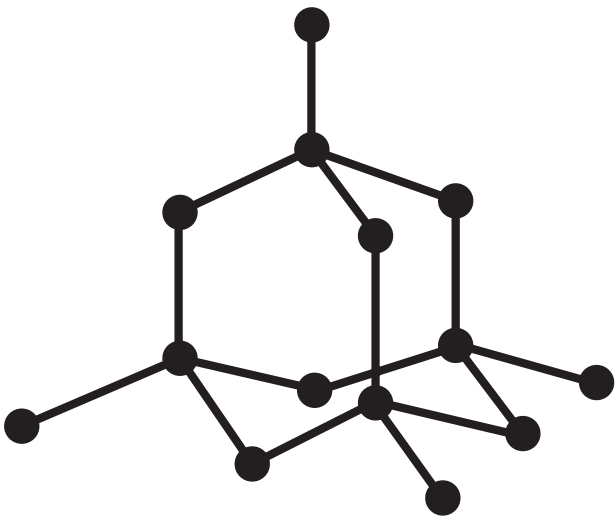
hydrated copper(II) sulfate



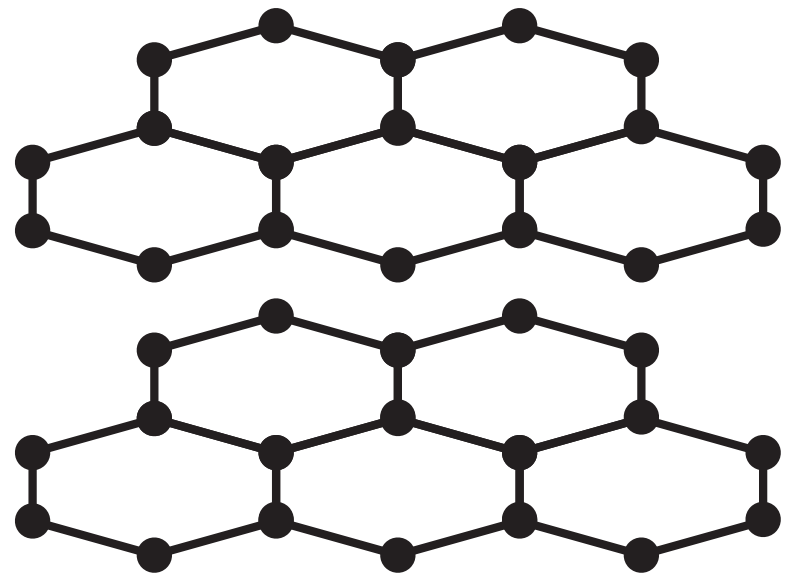
mass of empty tube in g	20.52
mass of tube and $\text{CuSO}_4 \cdot x\text{H}_2\text{O}$ in g	31.77
mass of tube and $\text{CuSO}_4$ in g	28.20

## Question 8(a)

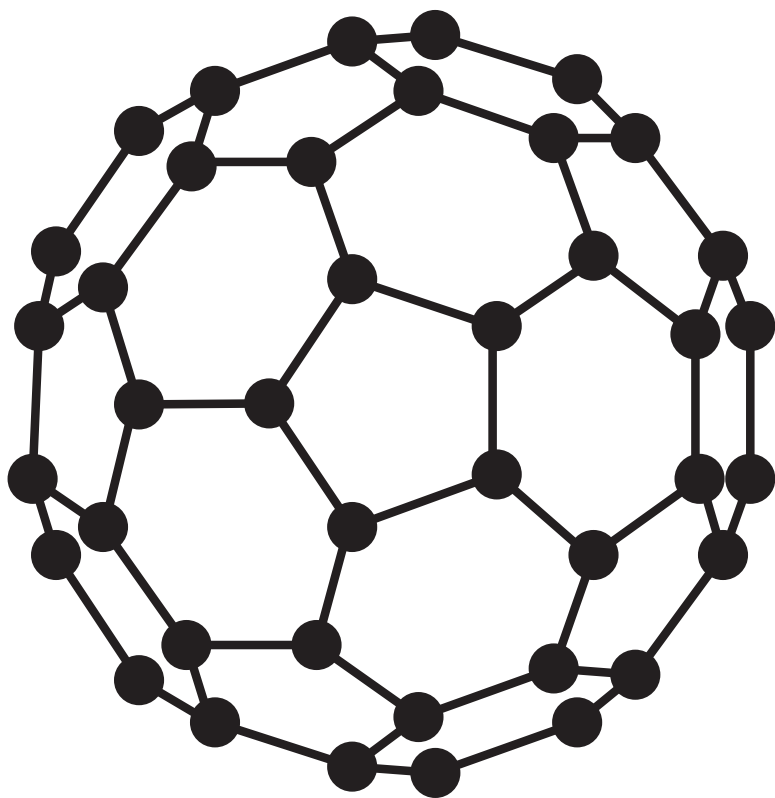
Diamond



Graphite



Question 8(b)



Substance	Approximate melting point in °C
diamond	4000
graphite	3600
C <sub>60</sub> fullerene	600

Question 10(b)

Name	ammonium sulfate		ammonium carbonate
Formula	$(\text{NH}_4)_2\text{SO}_4$	$\text{NH}_4\text{Cl}$	

Question 10(b)

Name	ammonium sulfate		ammonium carbonate
Formula	$(\text{NH}_4)_2\text{SO}_4$	$\text{NH}_4\text{Cl}$	

Question 10(c)

Name	Formula	Percentage of nitrogen (%)	Approximate pH in solution
ammonia	NH <sub>3</sub> (g)	82	11
ammonium nitrate	NH <sub>4</sub> NO <sub>3</sub> (s)		5·5
ammonium sulfate	(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> (s)	21	5·5