

Paper Reference(s) 9BI0/03
Pearson Edexcel Level 3 GCE

Biology B
Advanced
PAPER 3: General and Practical Principles in Biology

Wednesday 19 June 2024 – Morning

Time: 2 hours 30 minutes

Diagram Booklet

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

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.

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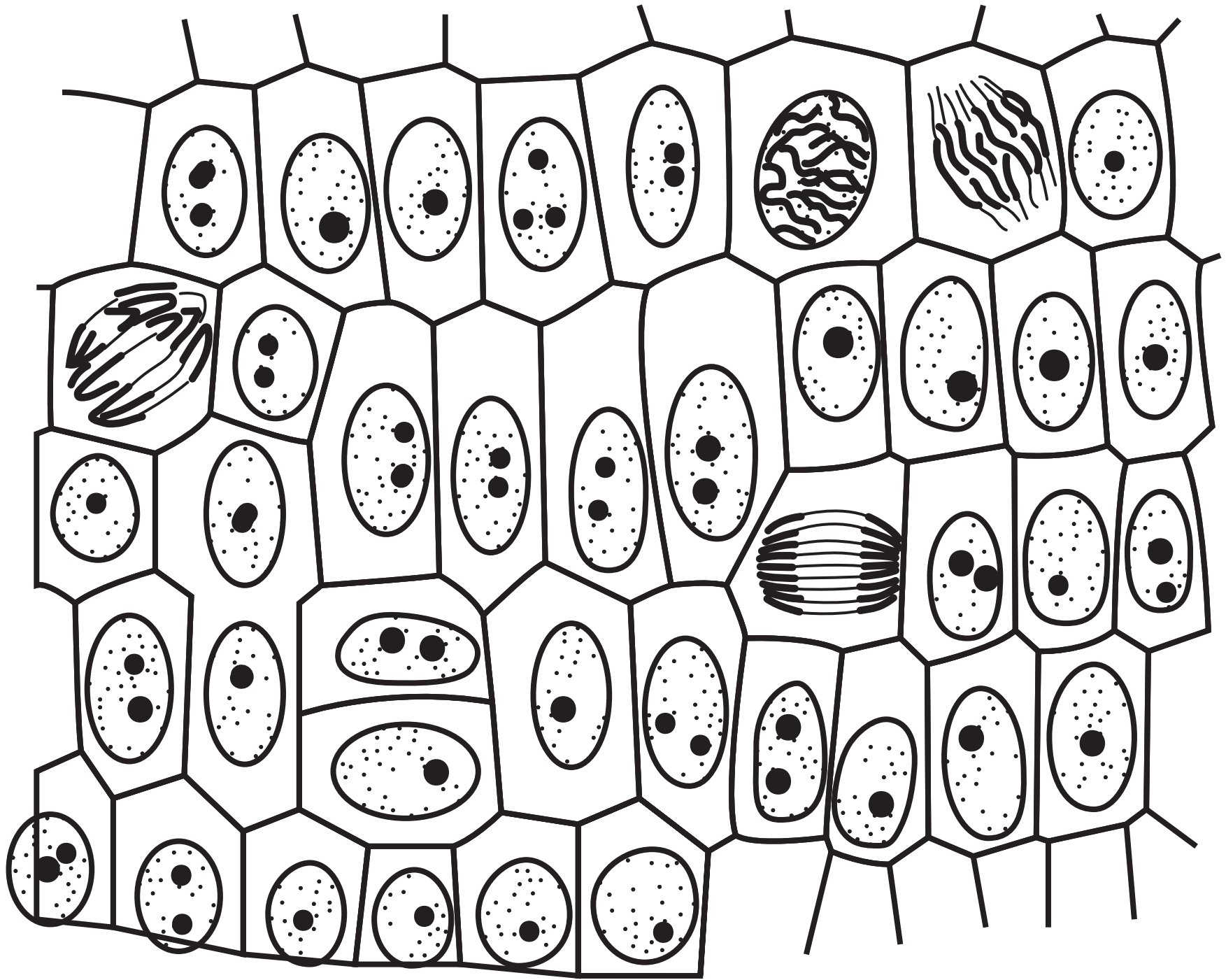
31 Question 10(c)

Spare Copies

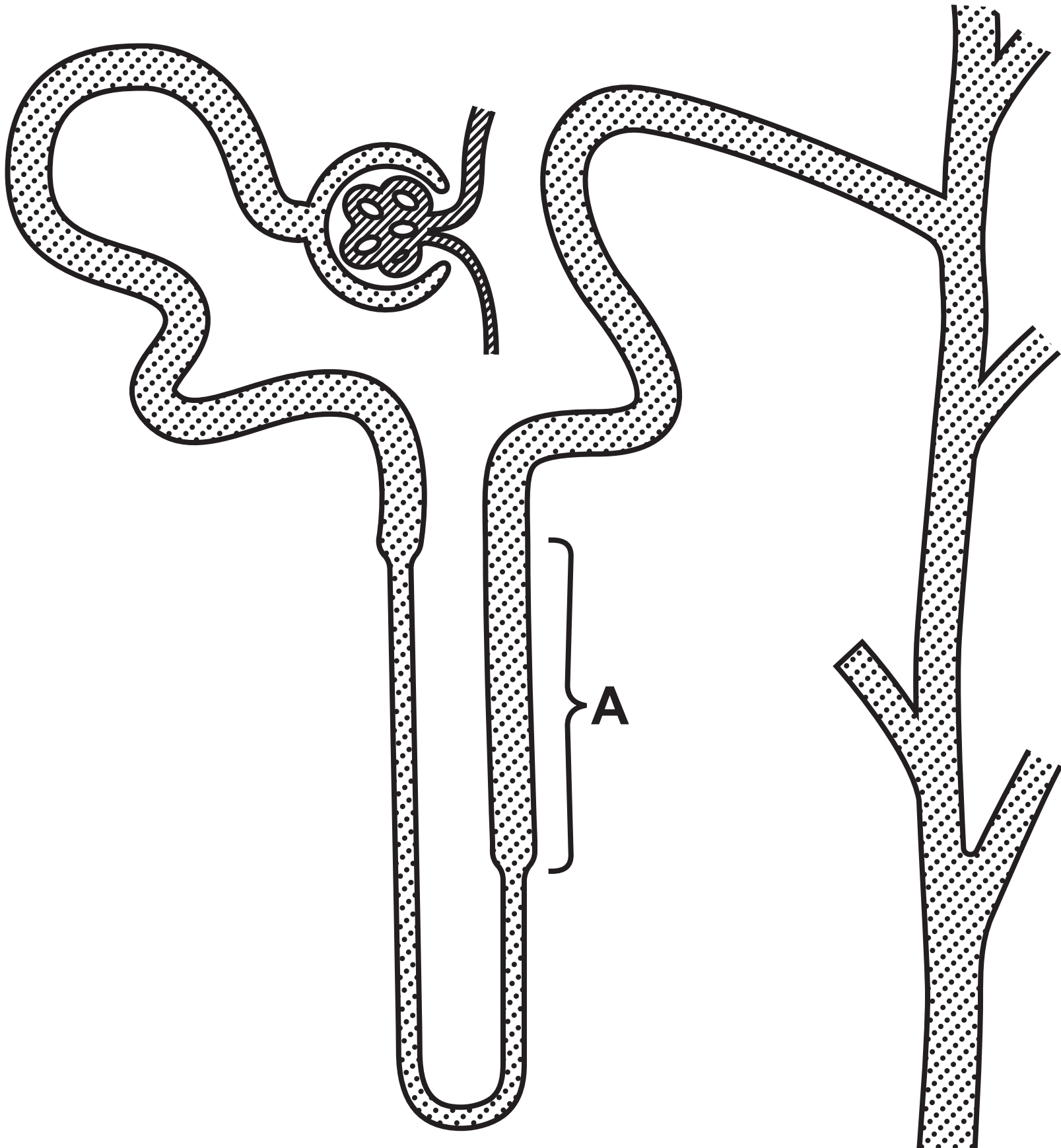
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Question 1(c)

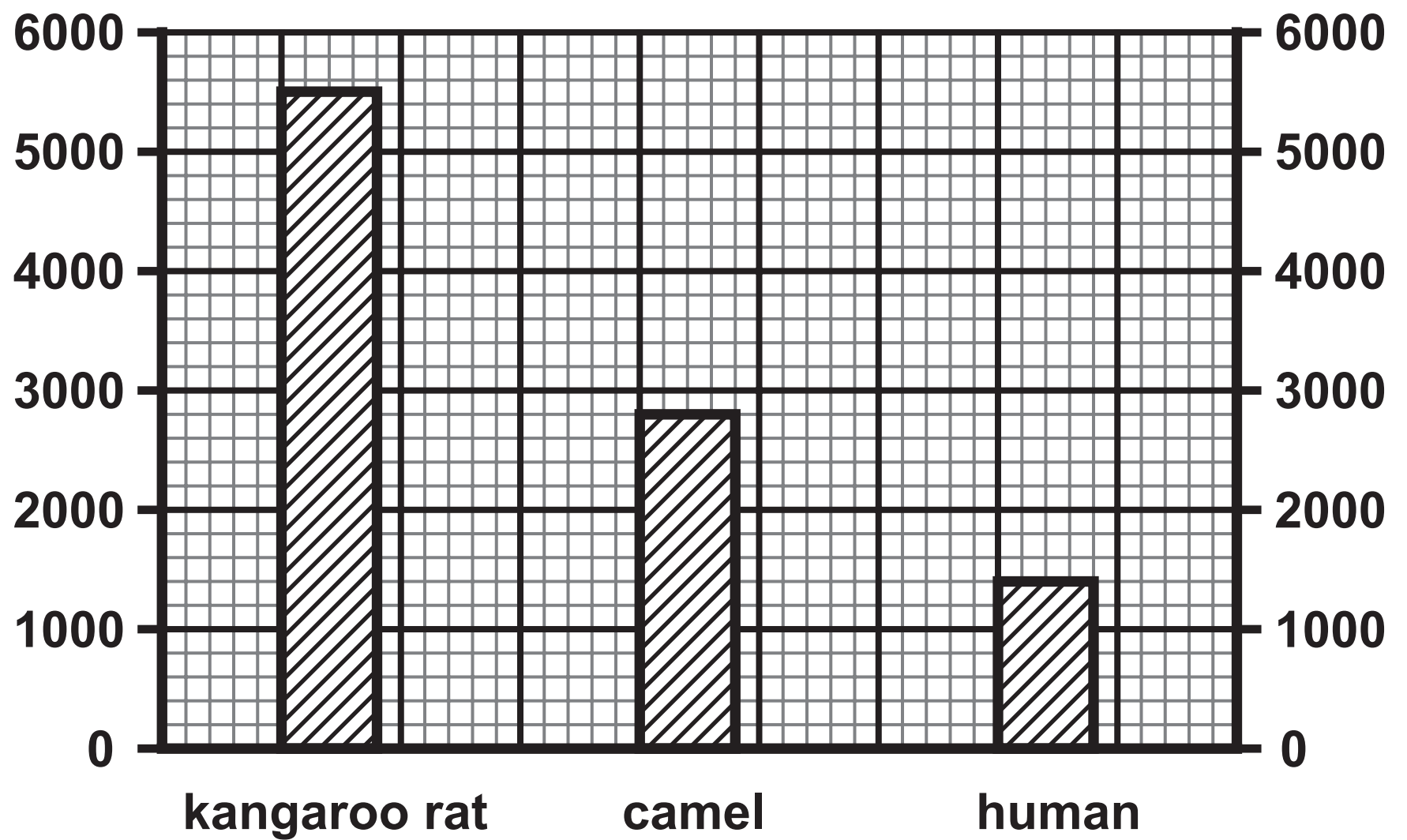


Question 2(a)

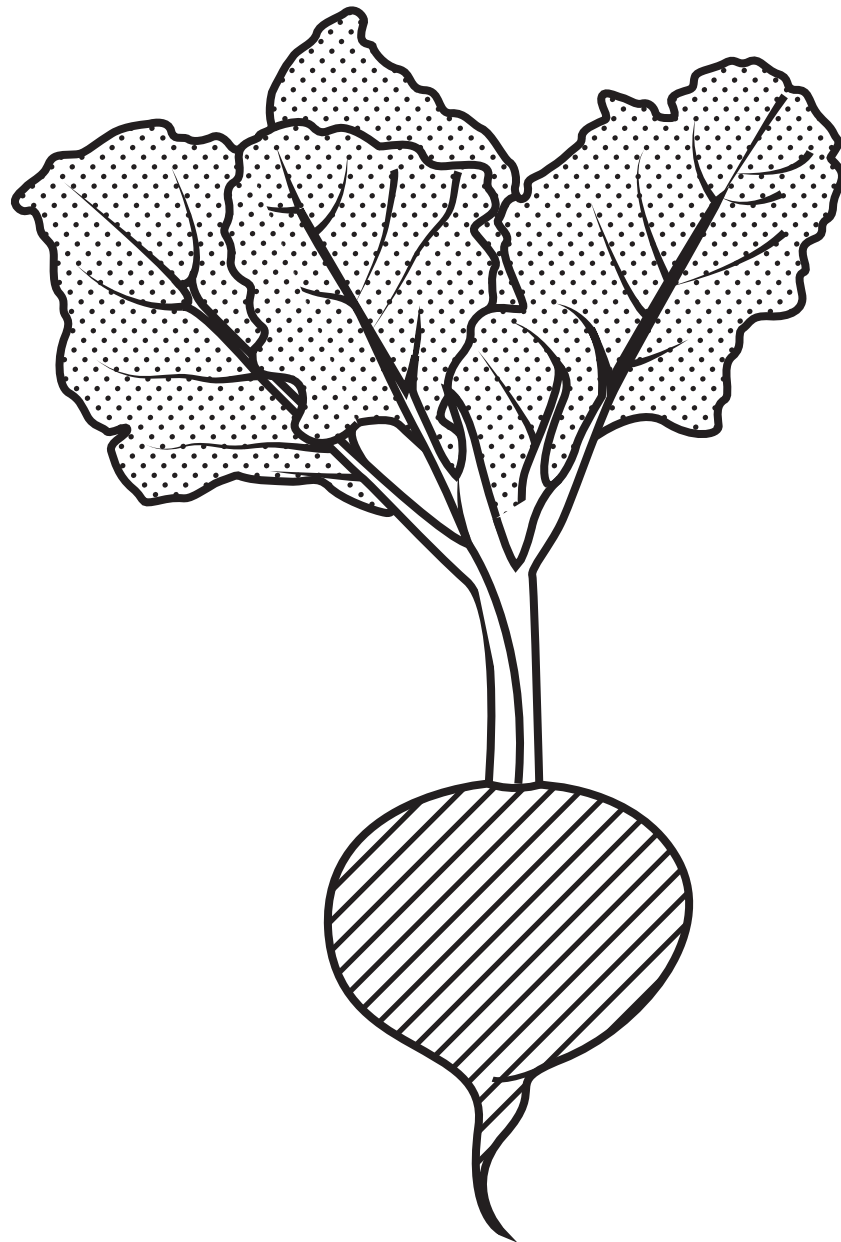


Question 2(b)

Urine concentration / a.u.



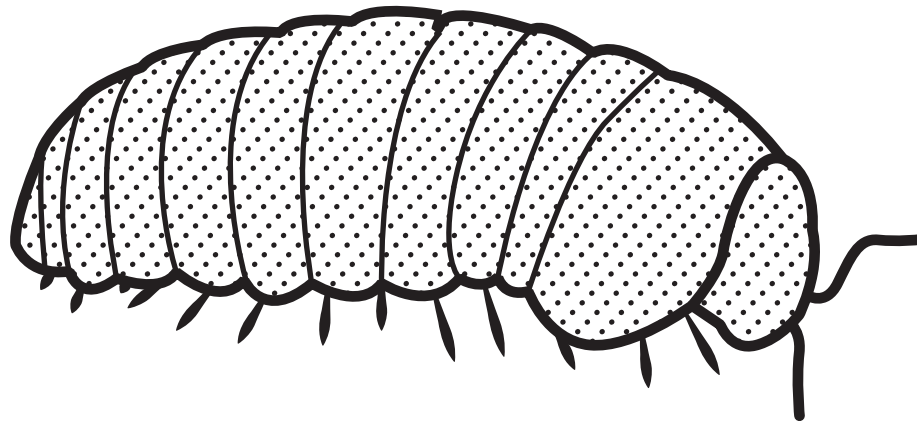
Question 3



Question 3(b)

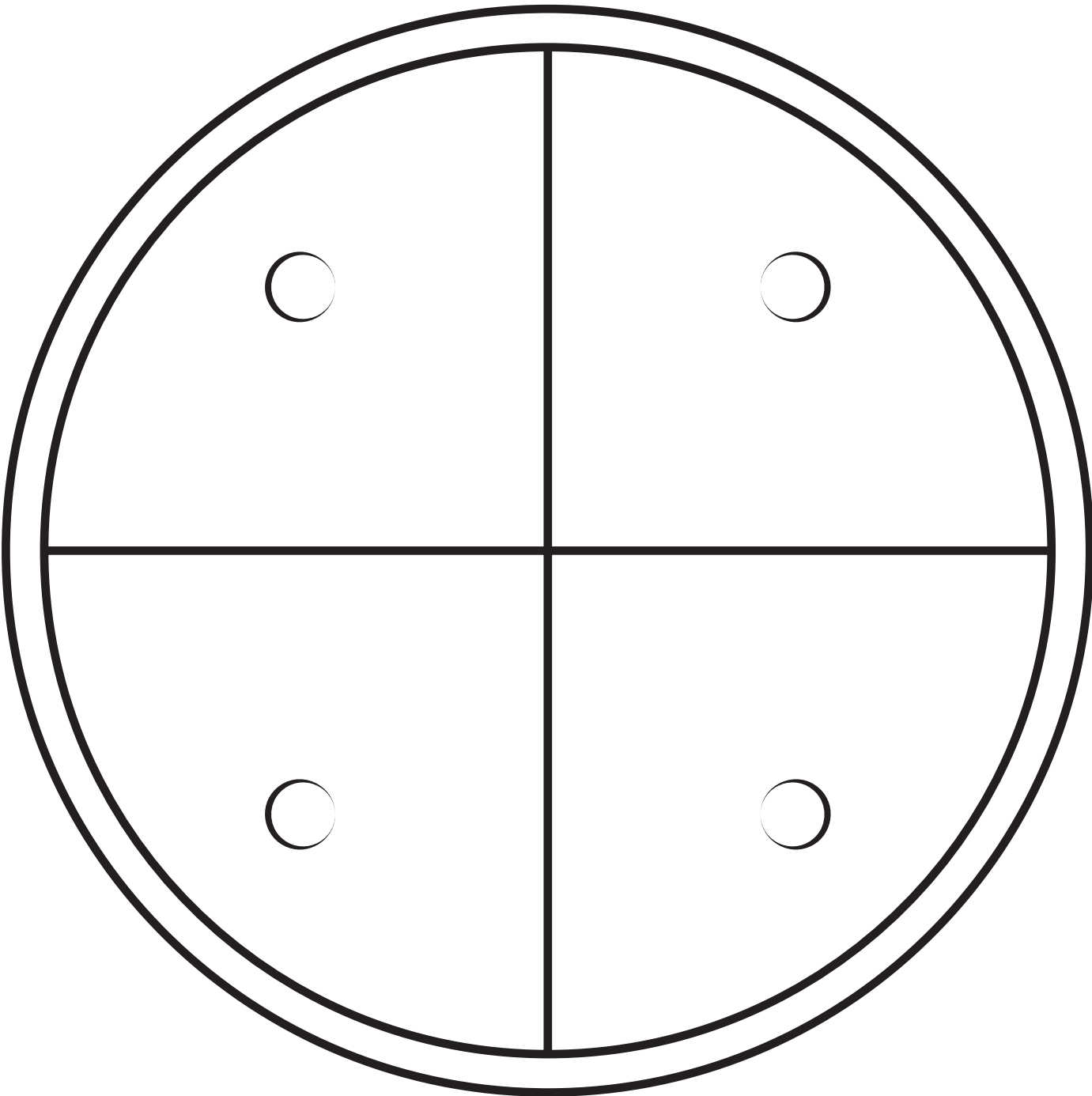
*Group 1 results were excluded from the calculations of the means.

Temperature /°C	Absorbance					Mean of groups 2–5
	Group 1*	Group 2	Group 3	Group 4	Group 5	
20	0·33	0·14	0·07	0·08	0·11	0·10
30	0·57	0·24	0·32	0·33	0·31	0·30
40	0·87	0·53	0·63	0·56	0·51	0·56
50	1·87	1·58	1·63	1·53	1·56	1·58
60	1·93	1·59	1·62	1·49	1·56	1·57

Question 4(a)**Magnified**

Question 4(b)

TOP VIEW

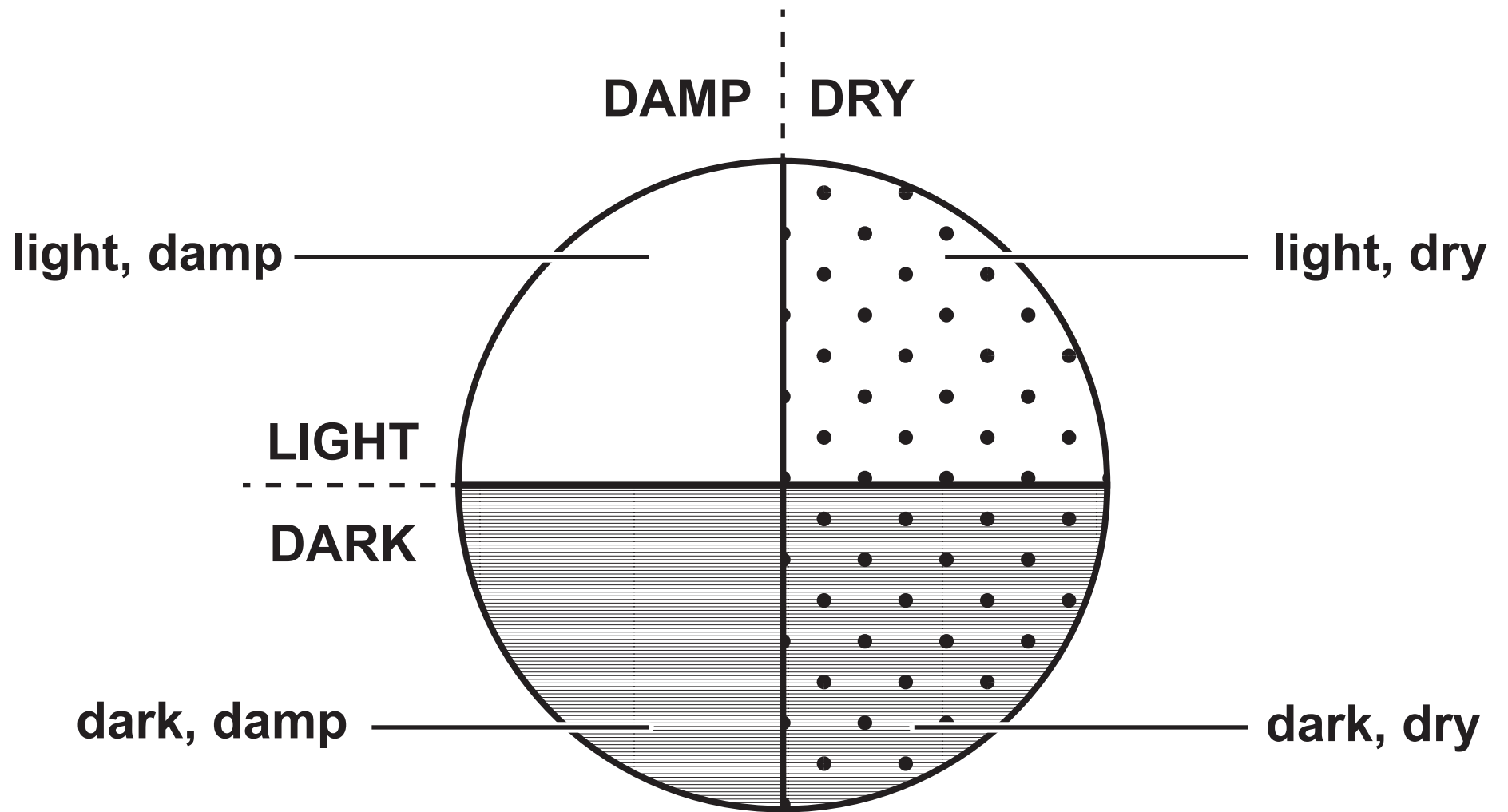


SIDE VIEW



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Question 4(b) continued.



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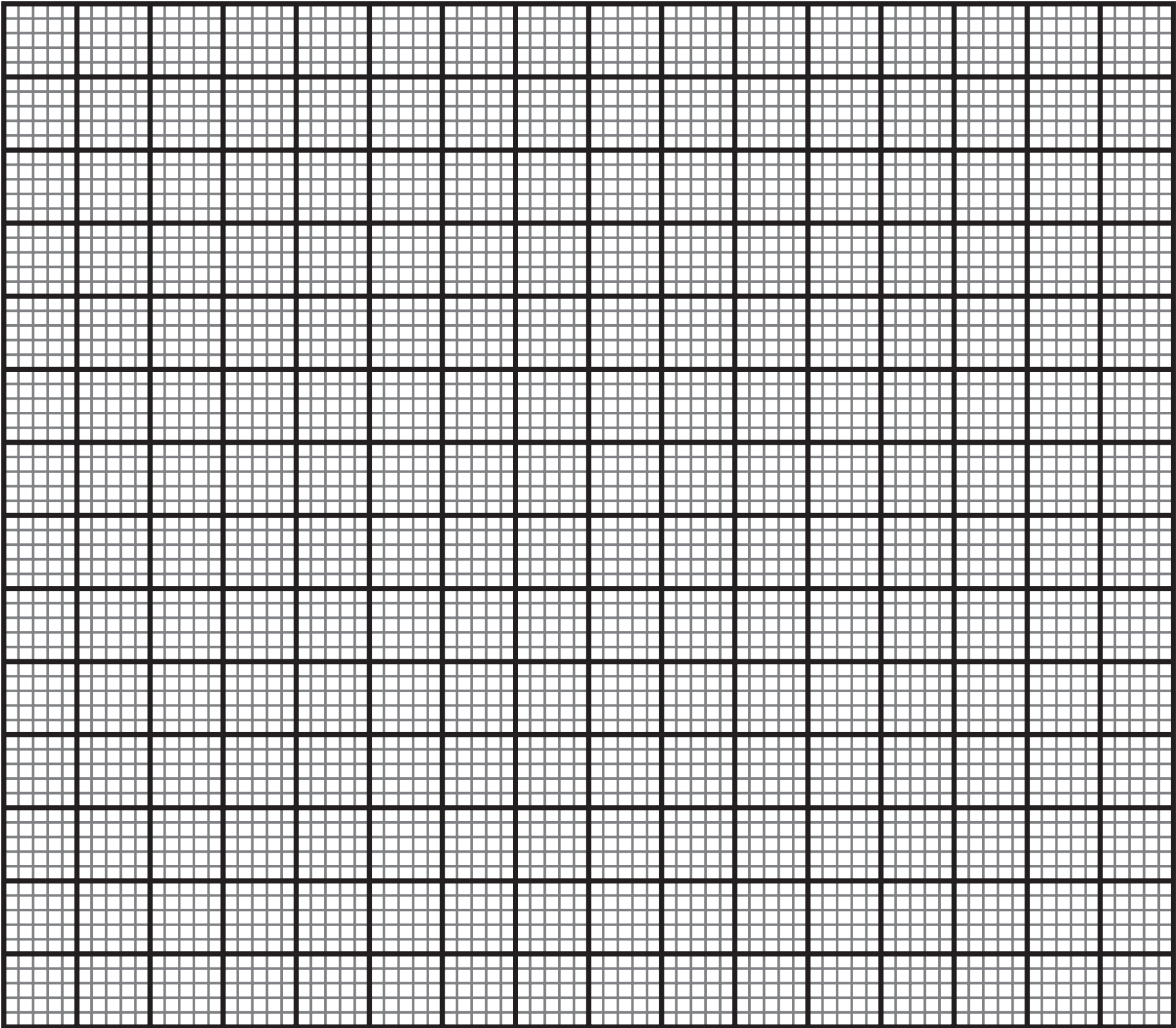
Section	Number of woodlice in each section of the chamber after 5 minutes			
	Trial 1	Trial 2	Trial 3	Trial 4
Light and dry	2	1	0	2
Light and damp	4	4	1	5
Dark and dry	4	3	3	3
Dark and damp	10	12	16	10

Question 5(a)(ii)

Concentration of sucrose solution / mol dm ⁻³	0·0	0·1	0·2	0·3	0·4	0·5	0·6	0·7	0·8
Mean percentage of plasmolysed cells (%)	0·0	1·3	4·0	31·9	59·6	76·3	92·5	99·4	99·8

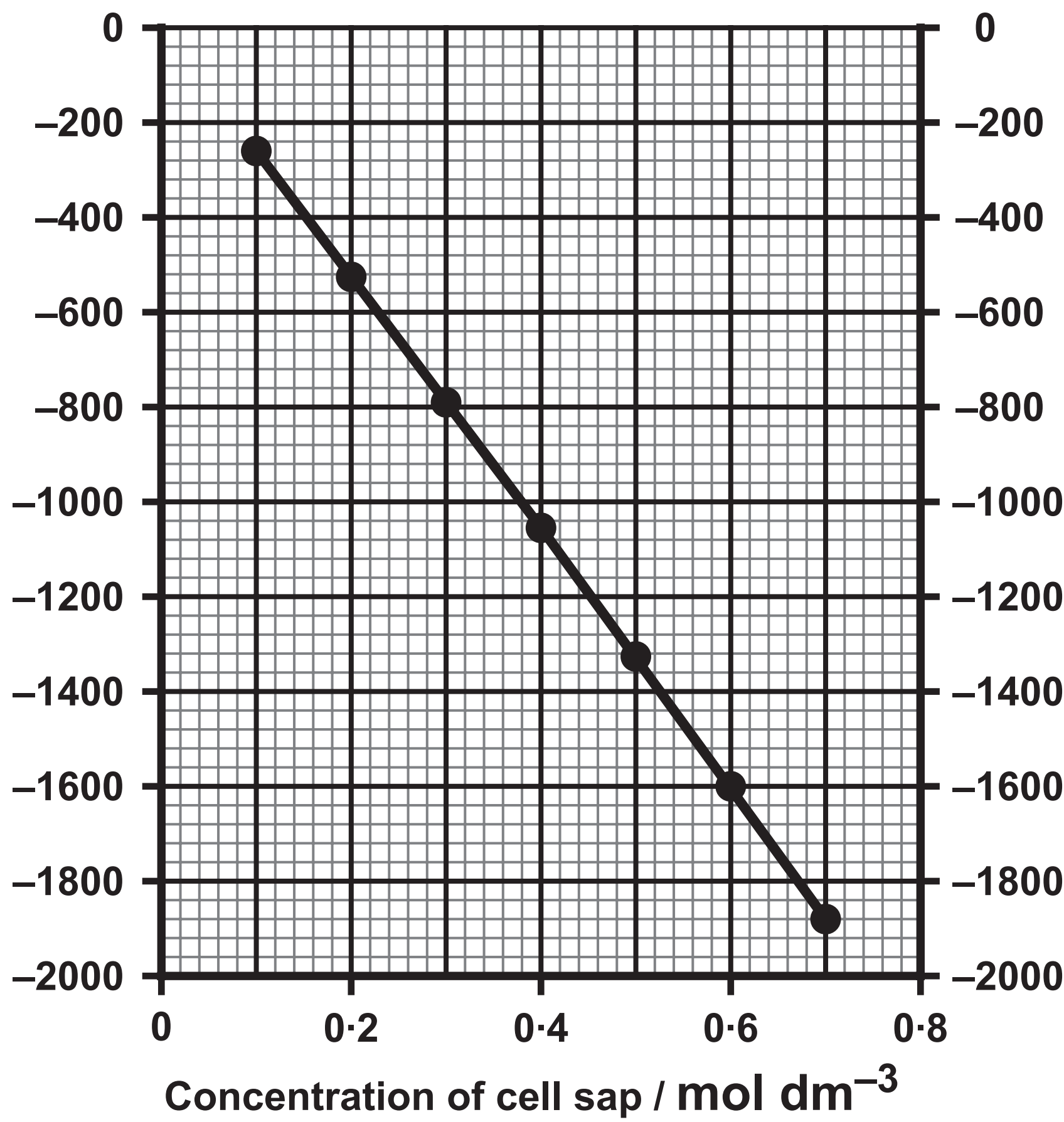
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Question 5(a)(ii) continued.

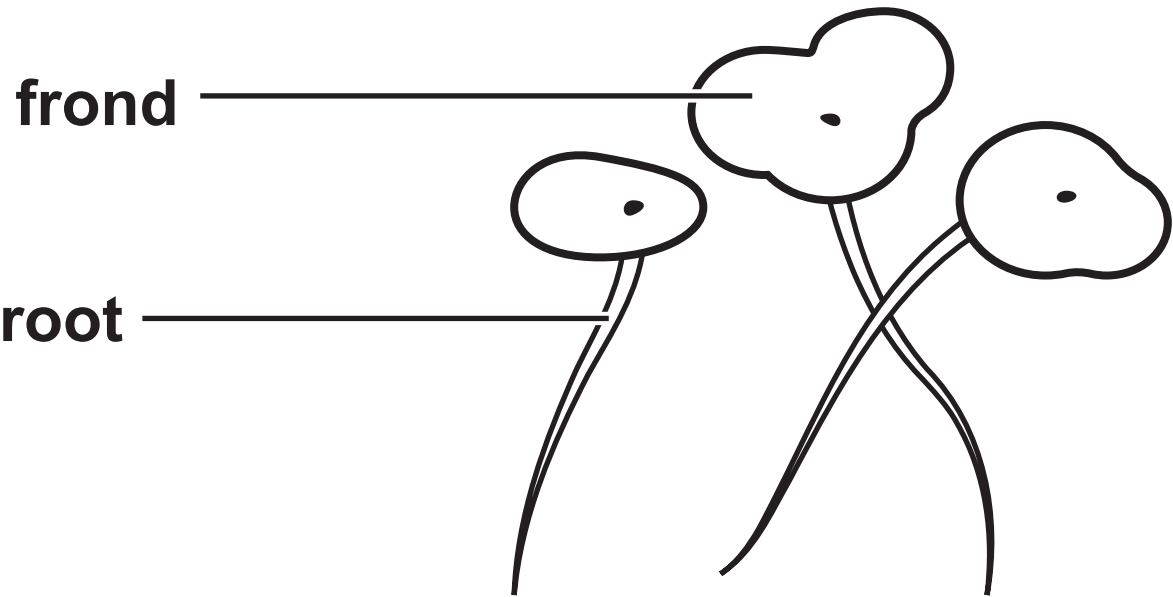


Question 5(a)(iv)

Osmotic potential / kPa



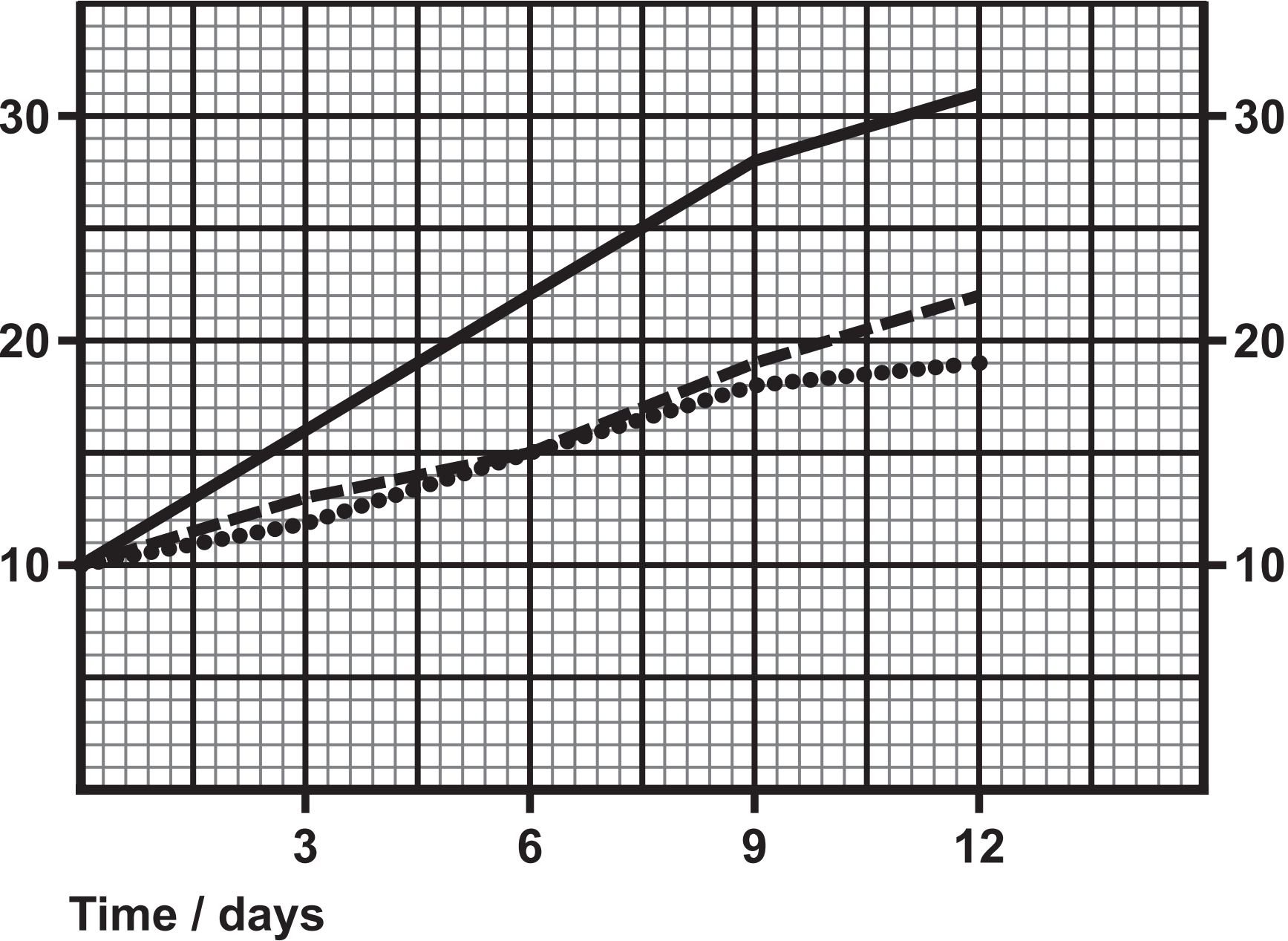
Question 6



Question 6(a)



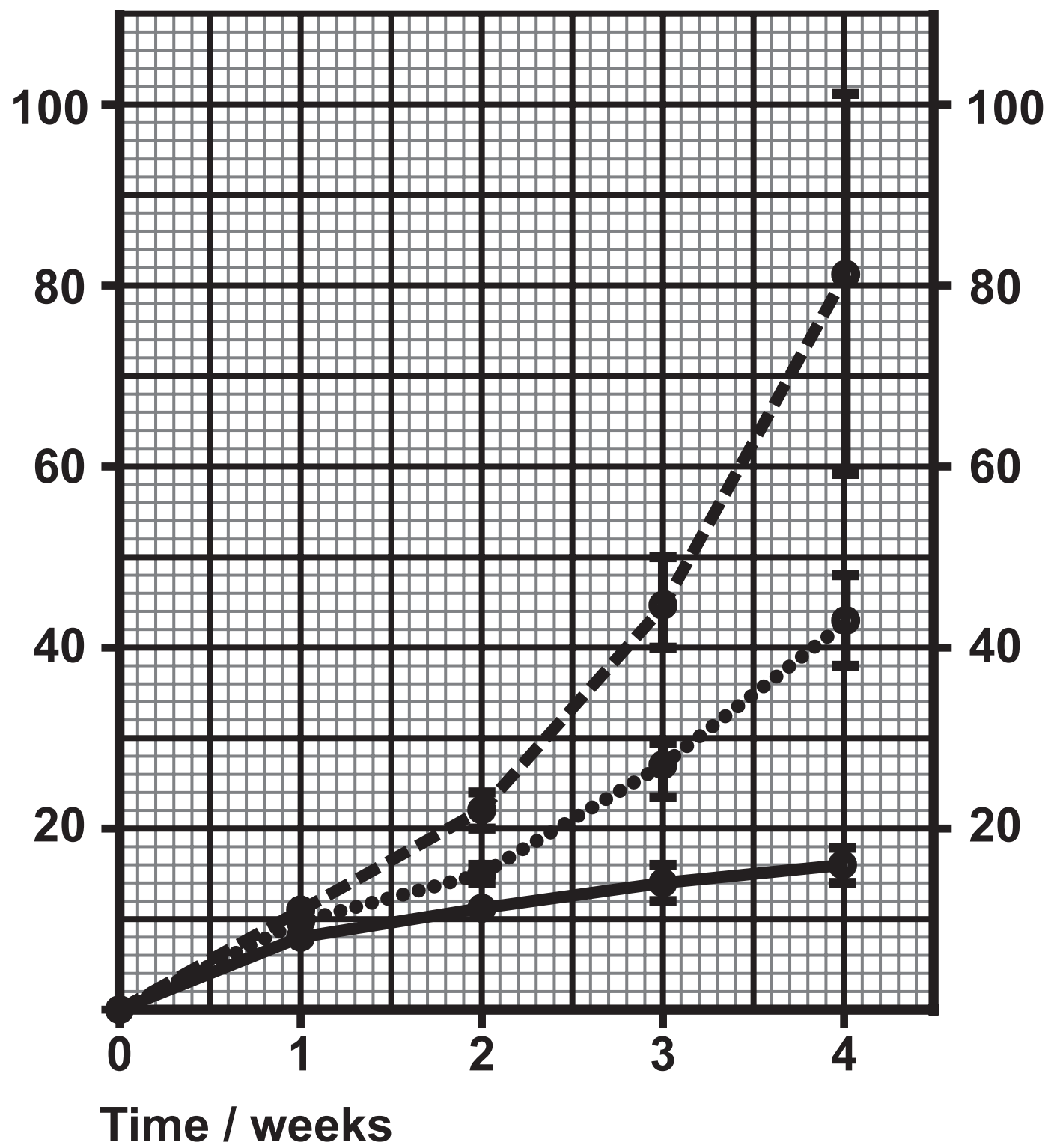
Number of plants



Question 6(b)

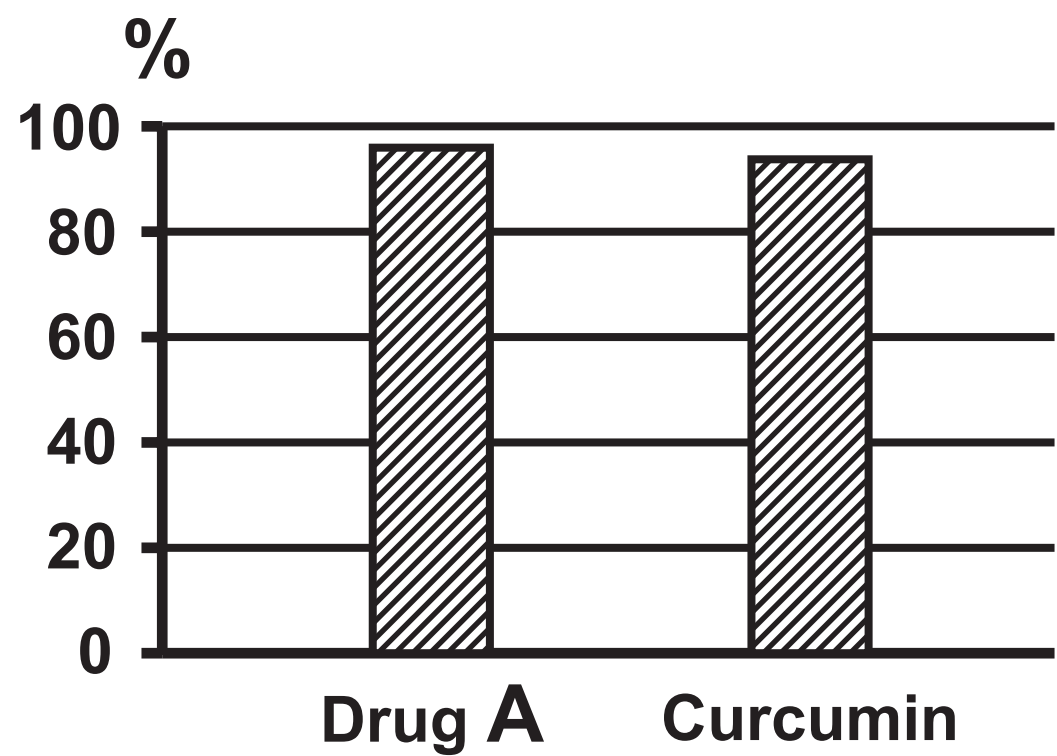
KEY
 - - - - 1.5 cm³ fertiliser per dm³
 1.0 cm³ fertiliser per dm³
 ——— 0.5 cm³ fertiliser per dm³

Mean growth
 of plants / a.u.

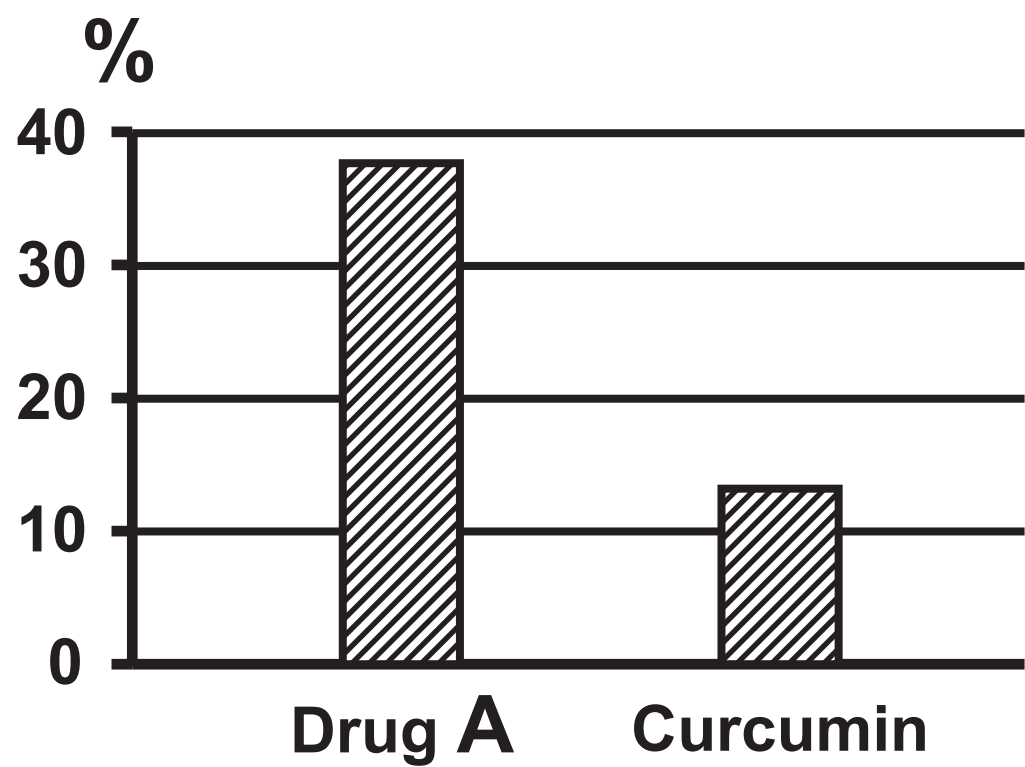


Question 7(b)

Percentage (%) of patients who reported at least 50% improvement in pain levels at day 28

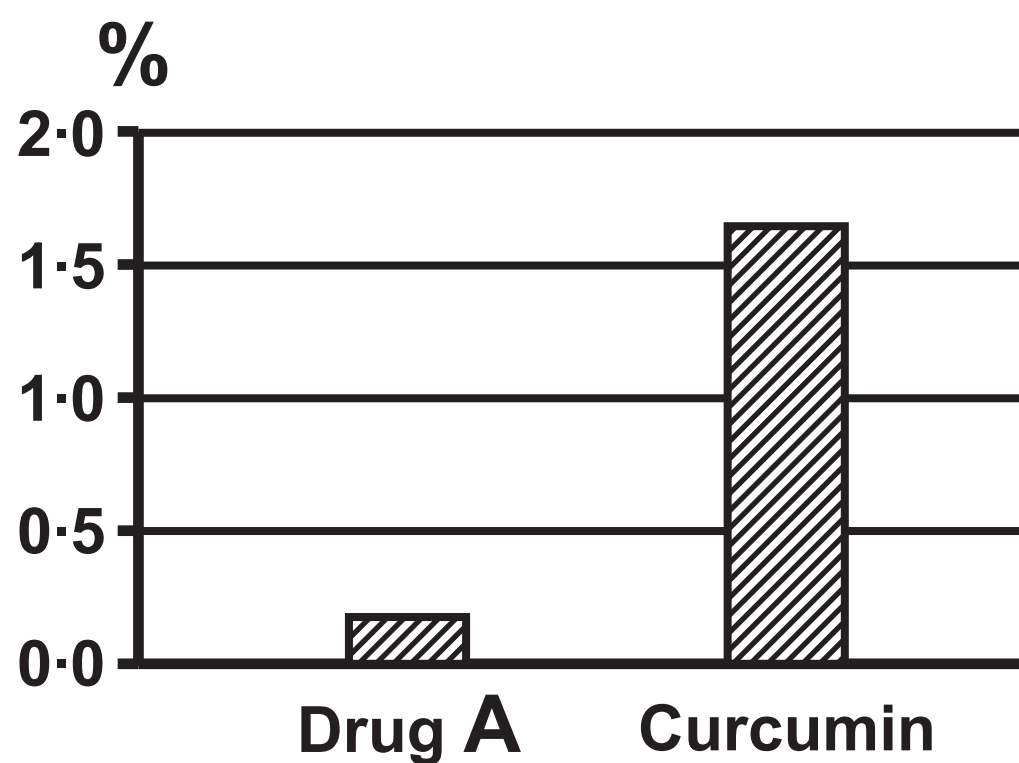


Percentage (%) of patients who reported side effects, including nausea and vomiting

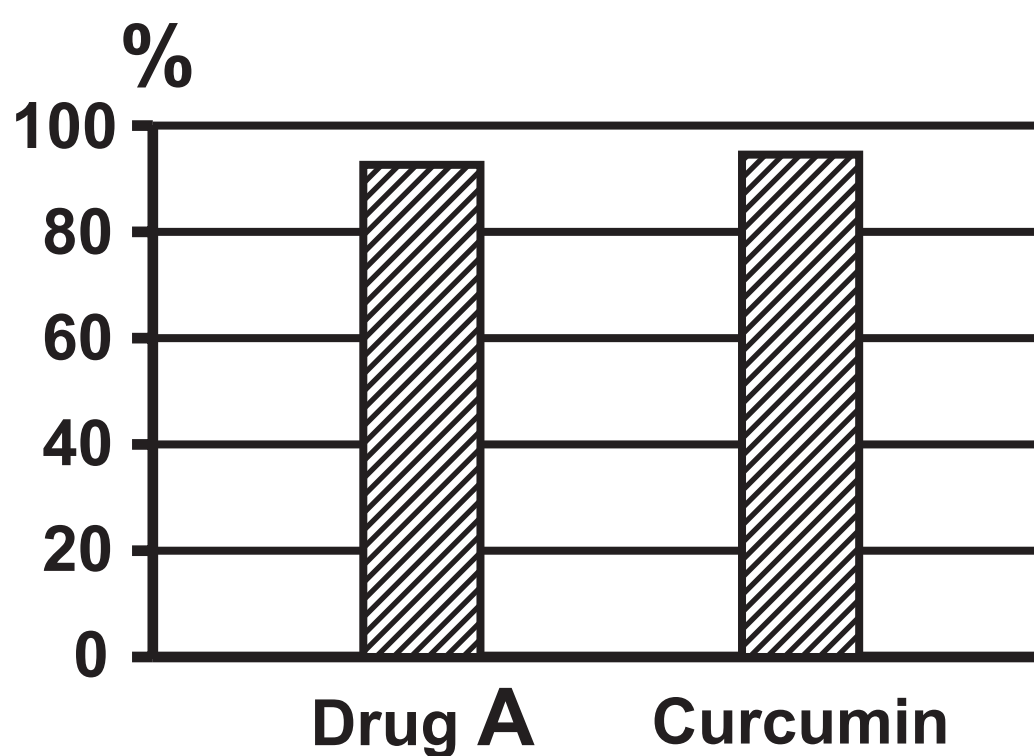


Question 7(b) continued.

Mean percentage (%) weight loss reported in each treatment group



Percentage (%) of patients rated as having excellent or good outcomes by doctors



Question 8

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Question 8 continued.

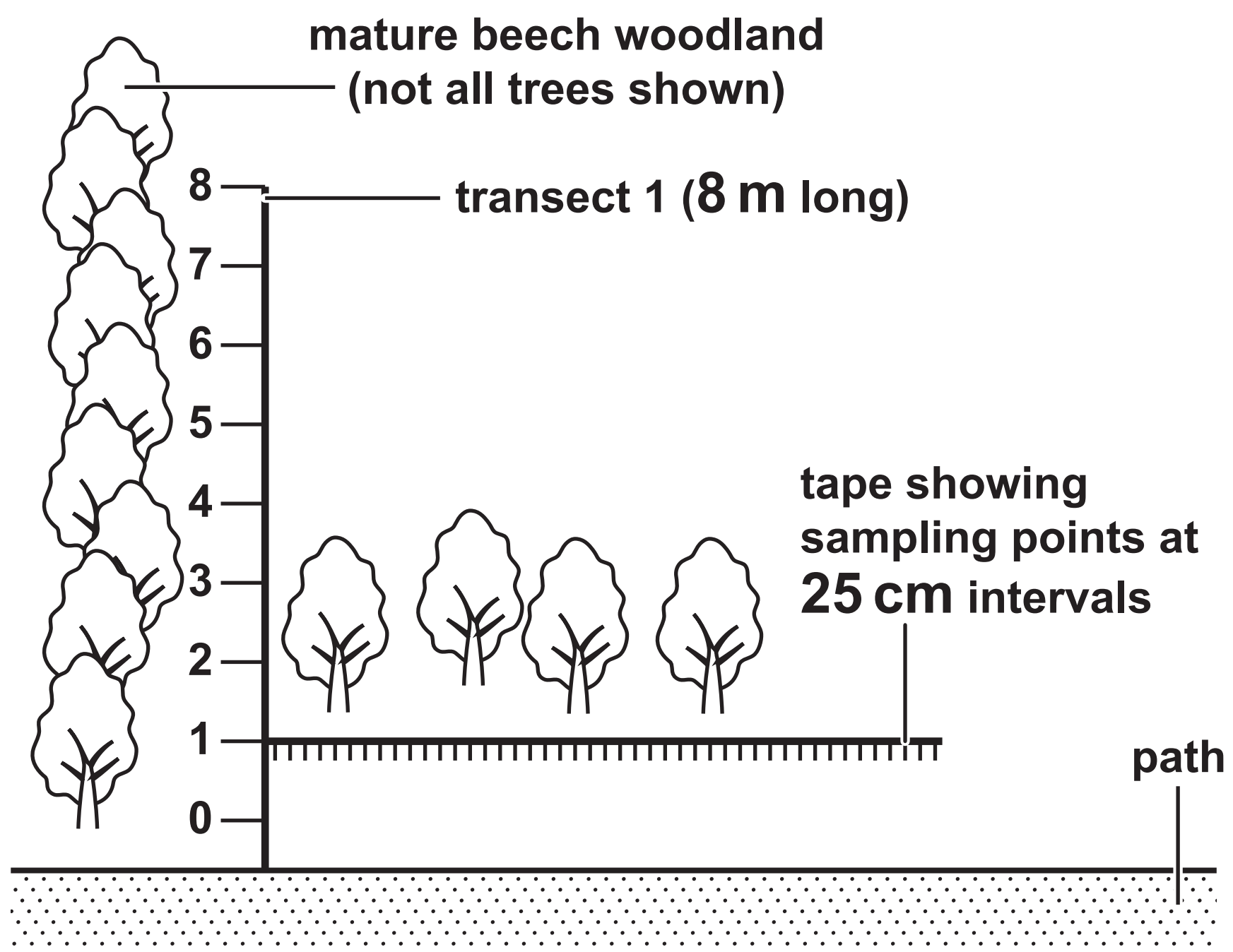


TABLE 1

Distance from path / m	Number of celandine plants recorded			
	Transect 1	Transect 2	Transect 3	Mean
0	18	19	20	19·0
1	19	16	17	17·3
2	17	15	12	14·7
3	15	8	13	12·0
4	9	9	6	8·0
5	3	16	6	8·3
6	5	4	4	4·3
7	2	3	2	2·3
8	1	6	2	3·0

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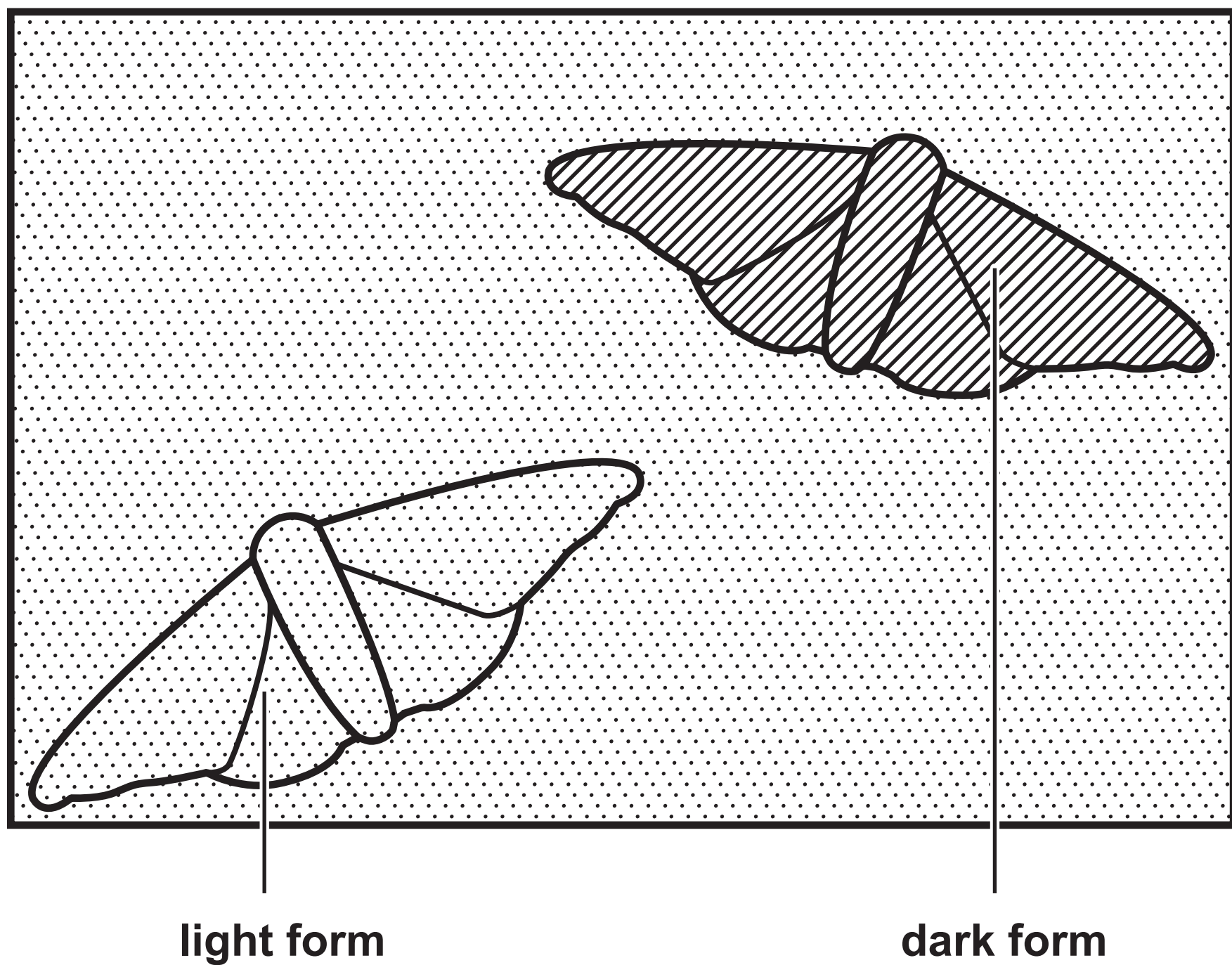
TABLE 2

Distance from path / m	Mean number of celandine plants	Rank distance from path	Rank number of celandine plants	d	d ²
0	19·0	1	9	−8	64
1	17·3	2	8	−6	36
2	14·7	3	7	−4	16
3	12·0	4	6	−2	4
4	8·0	5	4	1	1
5	8·3	6	5	1	1
6	4·3	7	3	4	16
7	2·3	8	1	7	49
8	3·0	9	2	7	49

Number of pairs of values	Level of significance		
	0·10	0·05	0·01
4	1·000	–	–
5	0·900	1·000	–
6	0·829	0·886	1·000
7	0·714	0·786	0·929
8	0·643	0·738	0·881
9	0·600	0·700	0·833
10	0·564	0·648	0·794

Question 9

TREE TRUNK IN RURAL AREA

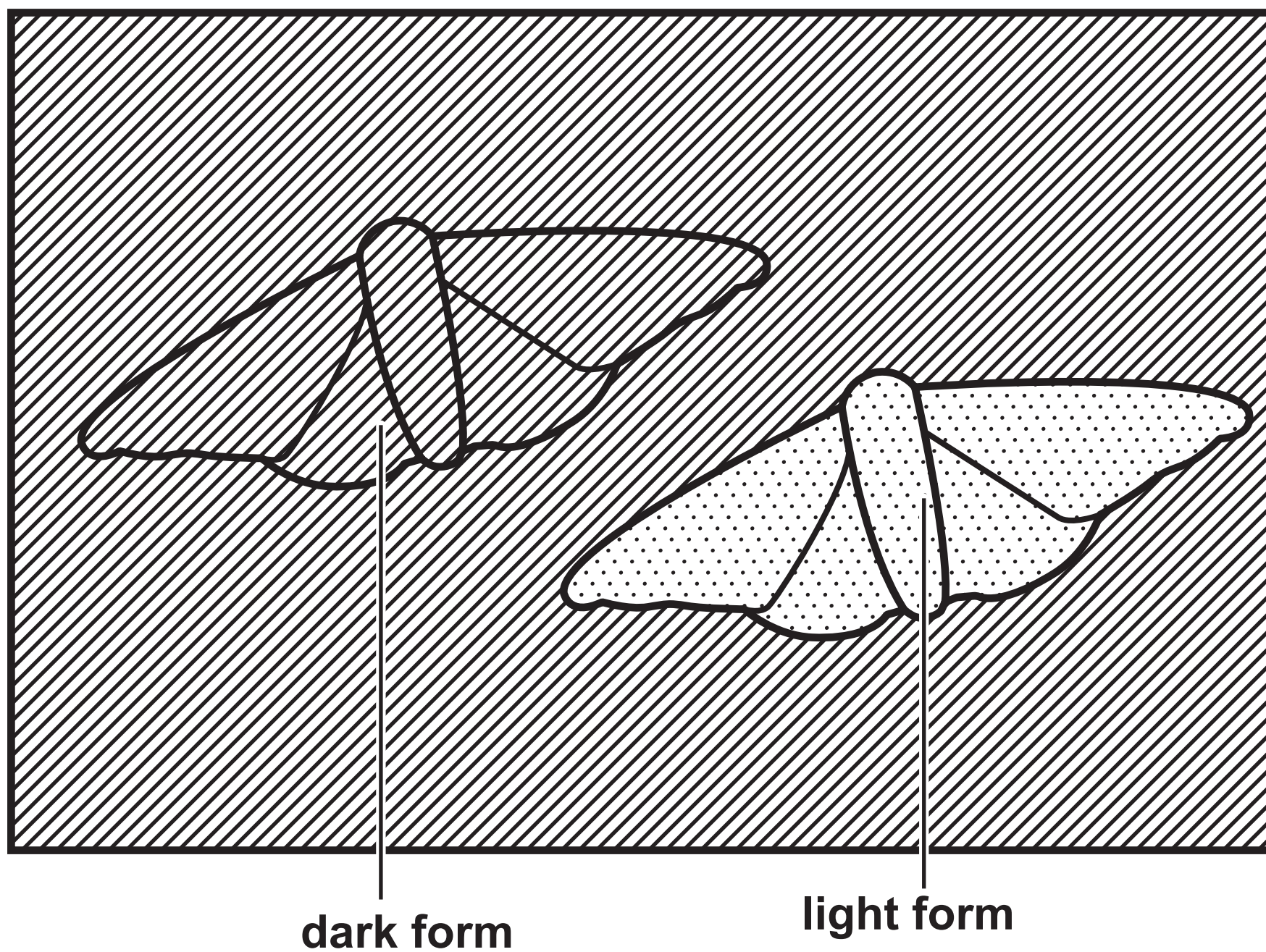


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Question 9 continued.

TREE TRUNK IN INDUSTRIAL AREA



Question 9(b)

Type of peppered moth	Percentage of marked moths released which were recaptured (%)	
	Industrial area	Rural area
Light form	13·1	13·7
Dark form	27·5	4·7

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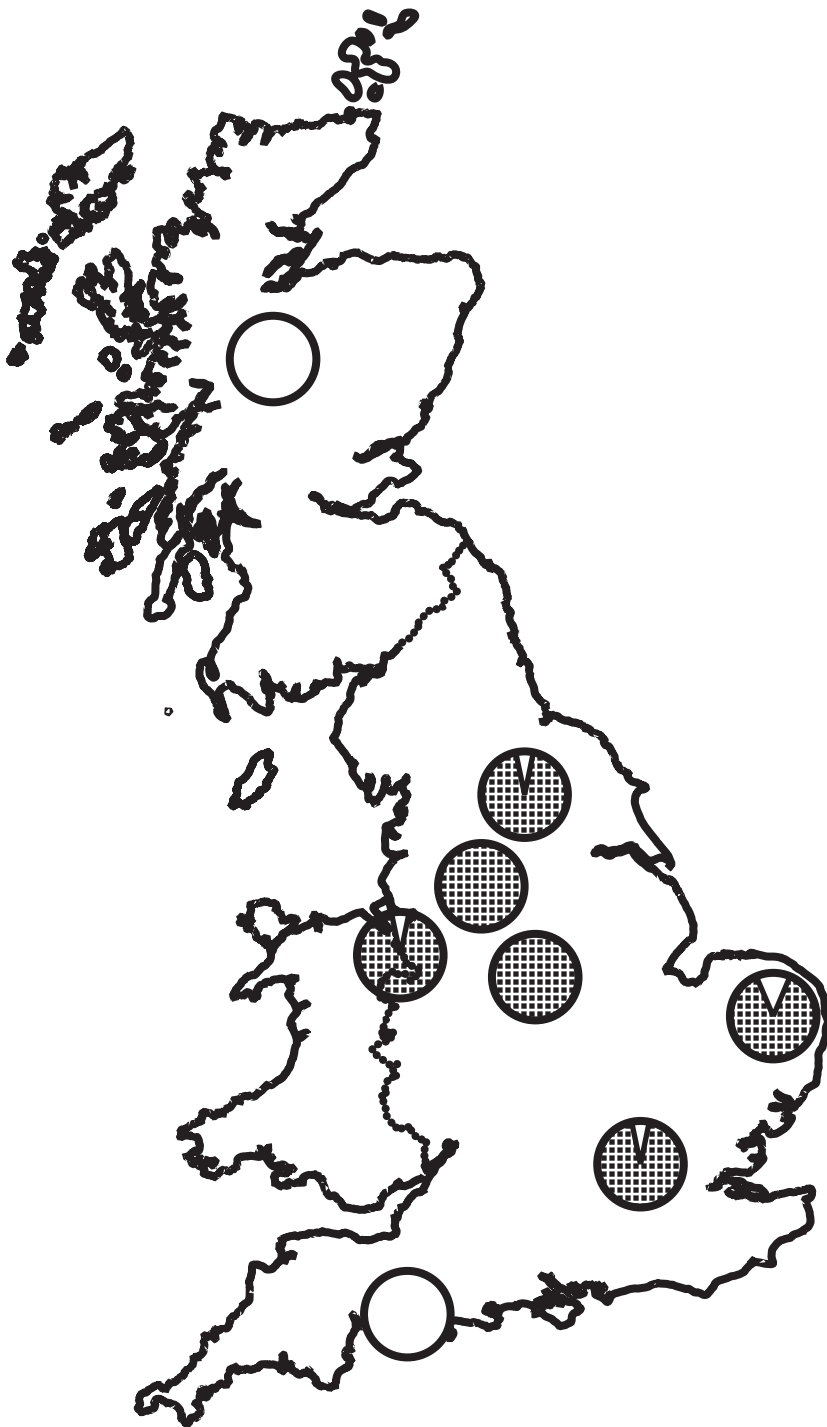
Question 9(b) continued.

KEY:

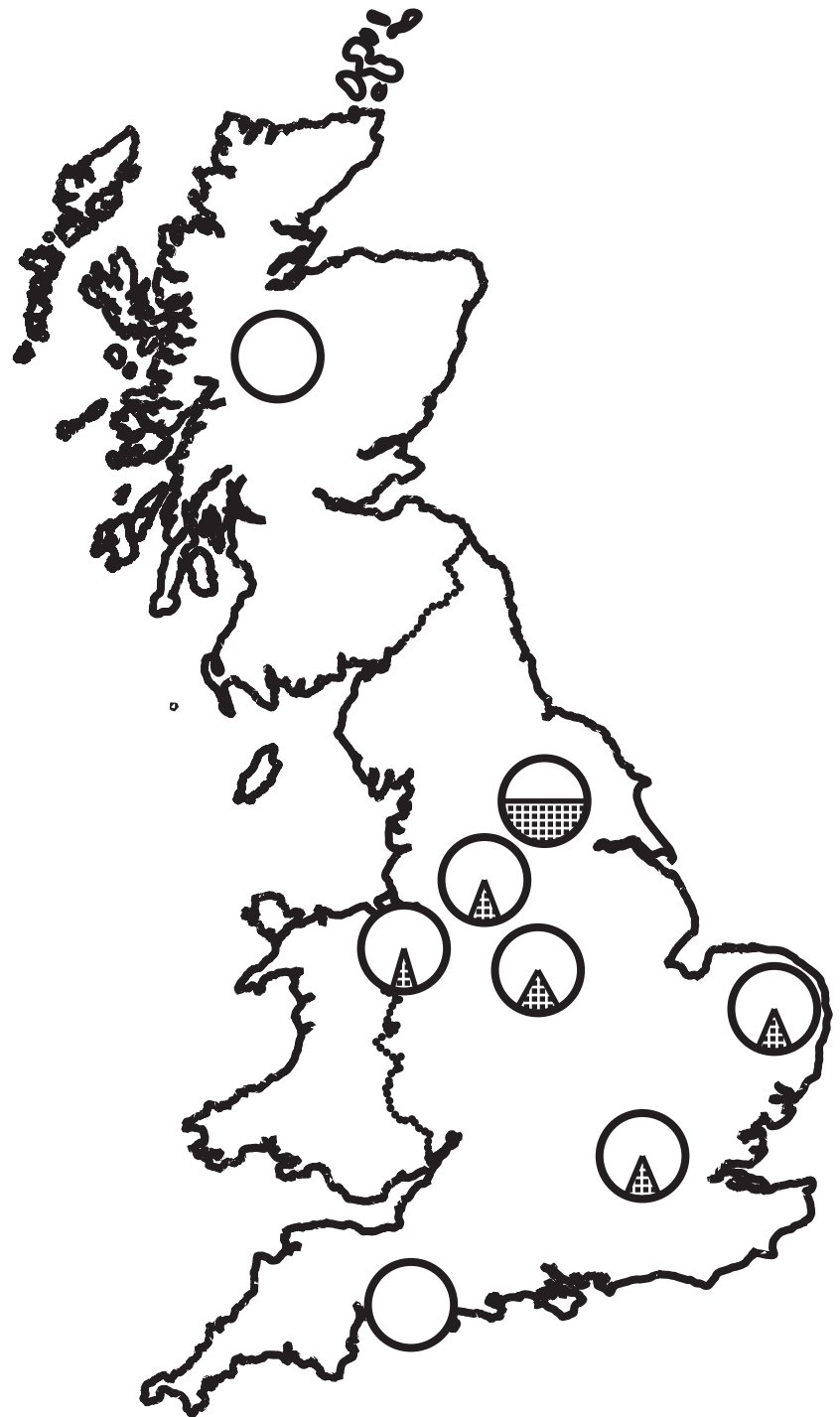
○ 100% Light form

● 100% Dark form

1950s



1970s

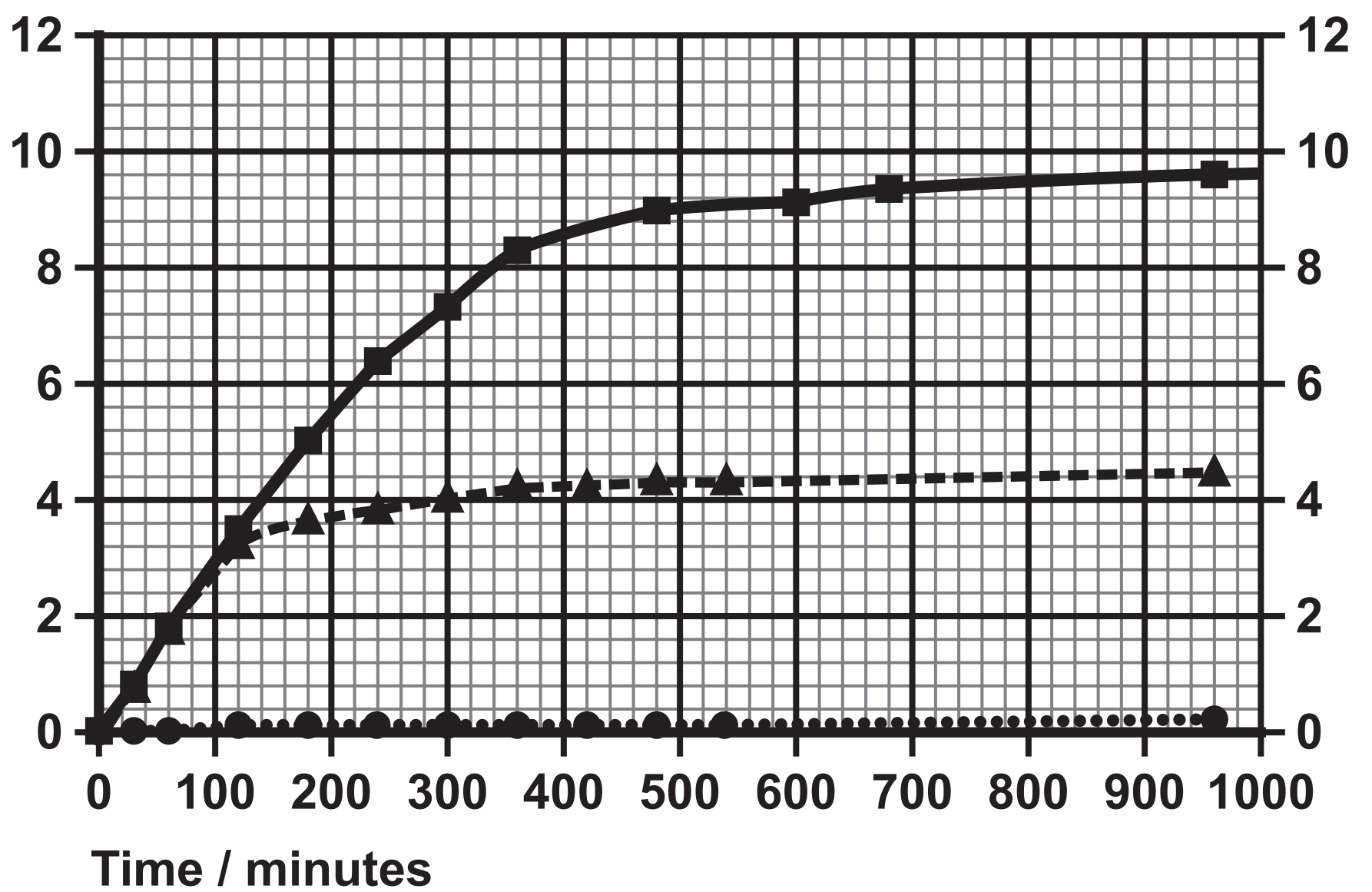


Question 10(a)

KEY

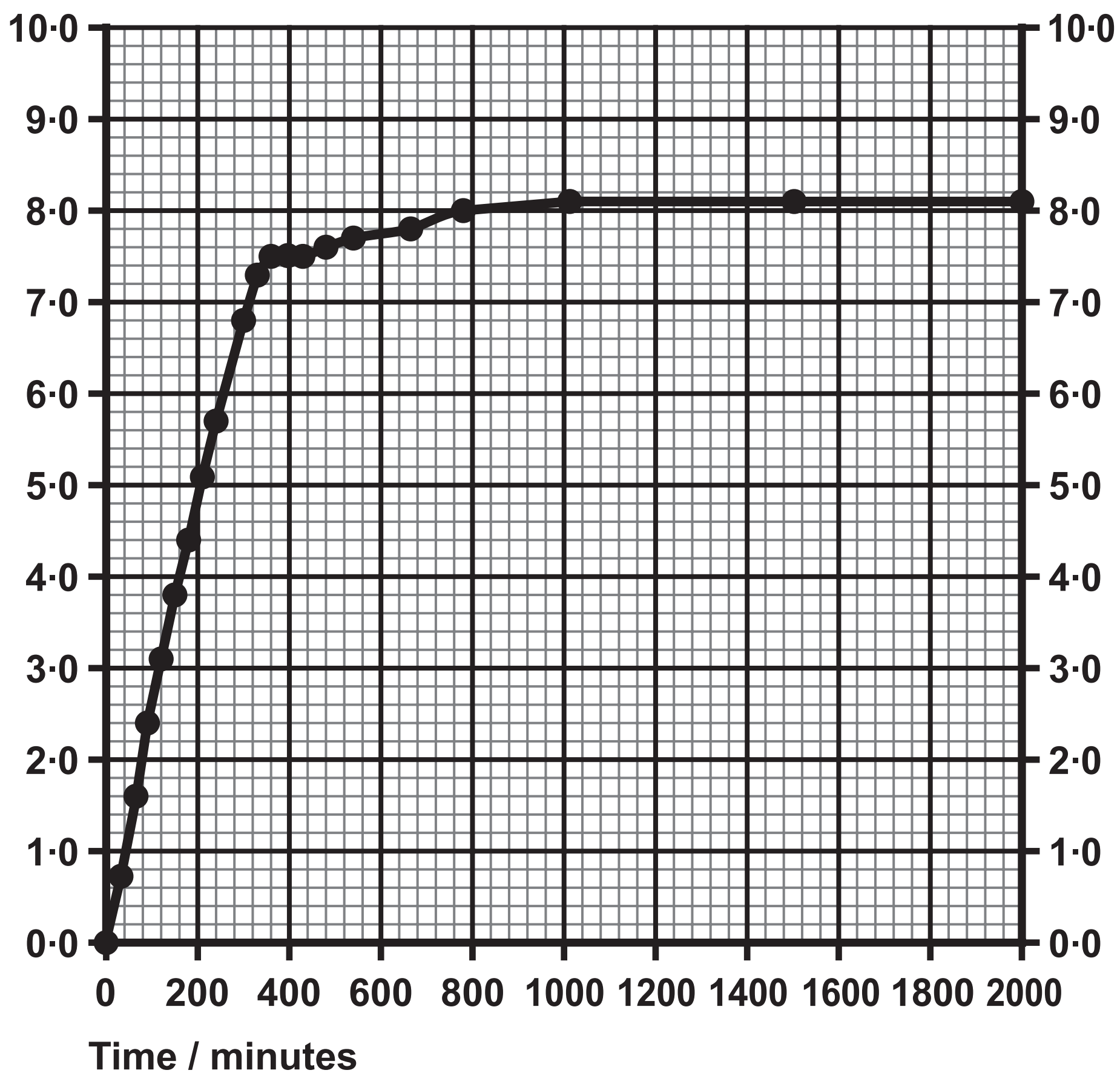
- sucrose
-▲- lactose with lactase
...●... lactose without lactase

Total volume of carbon
dioxide produced / cm^3



Question 10(c)

Total volume of carbon
dioxide produced / cm^3

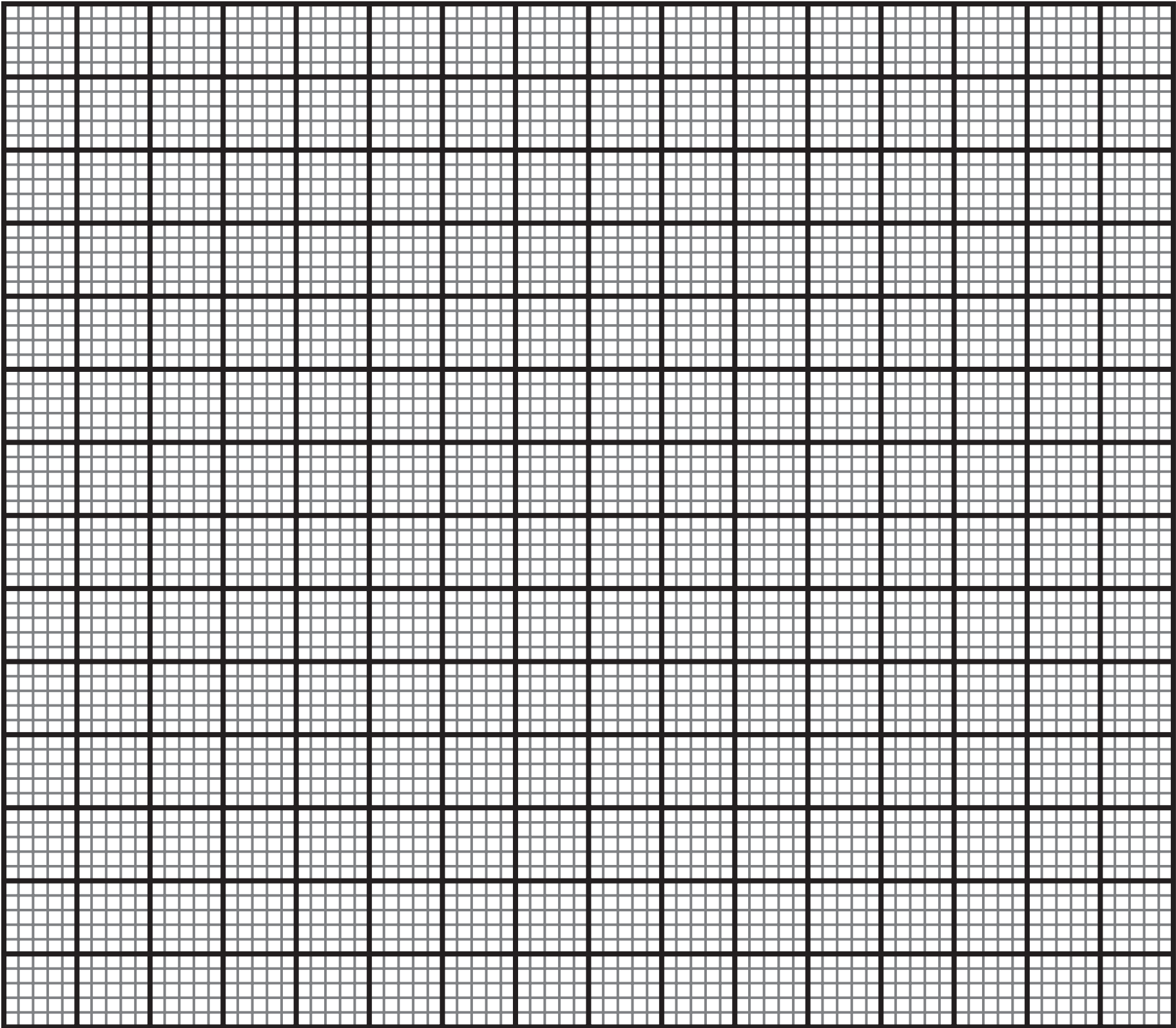


Question 5(a)(ii)

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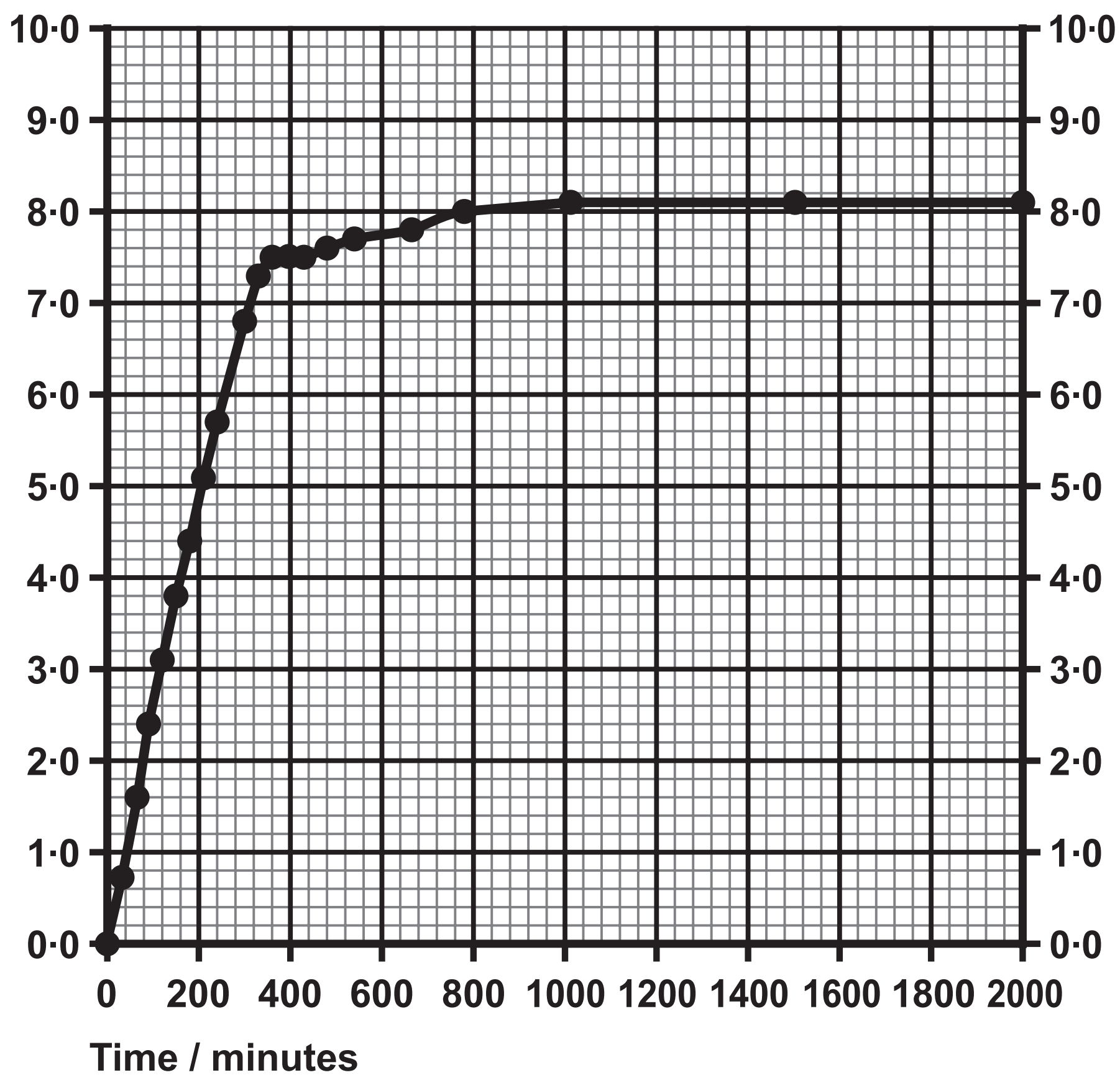
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Question 5(a)(ii) continued.



Question 10(c)

Total volume of carbon
dioxide produced / cm^3



Source information

Question 3

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Question 4(a)

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Question 4(b)

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Question 9

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