

Paper Reference(s) 4SS0/1P
Pearson Edexcel International GCSE (9–1)

Science (Single Award)
Physics
PAPER: 1P

Friday 14 June 2024 – Afternoon

Time: 1 hour 10 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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Question 1

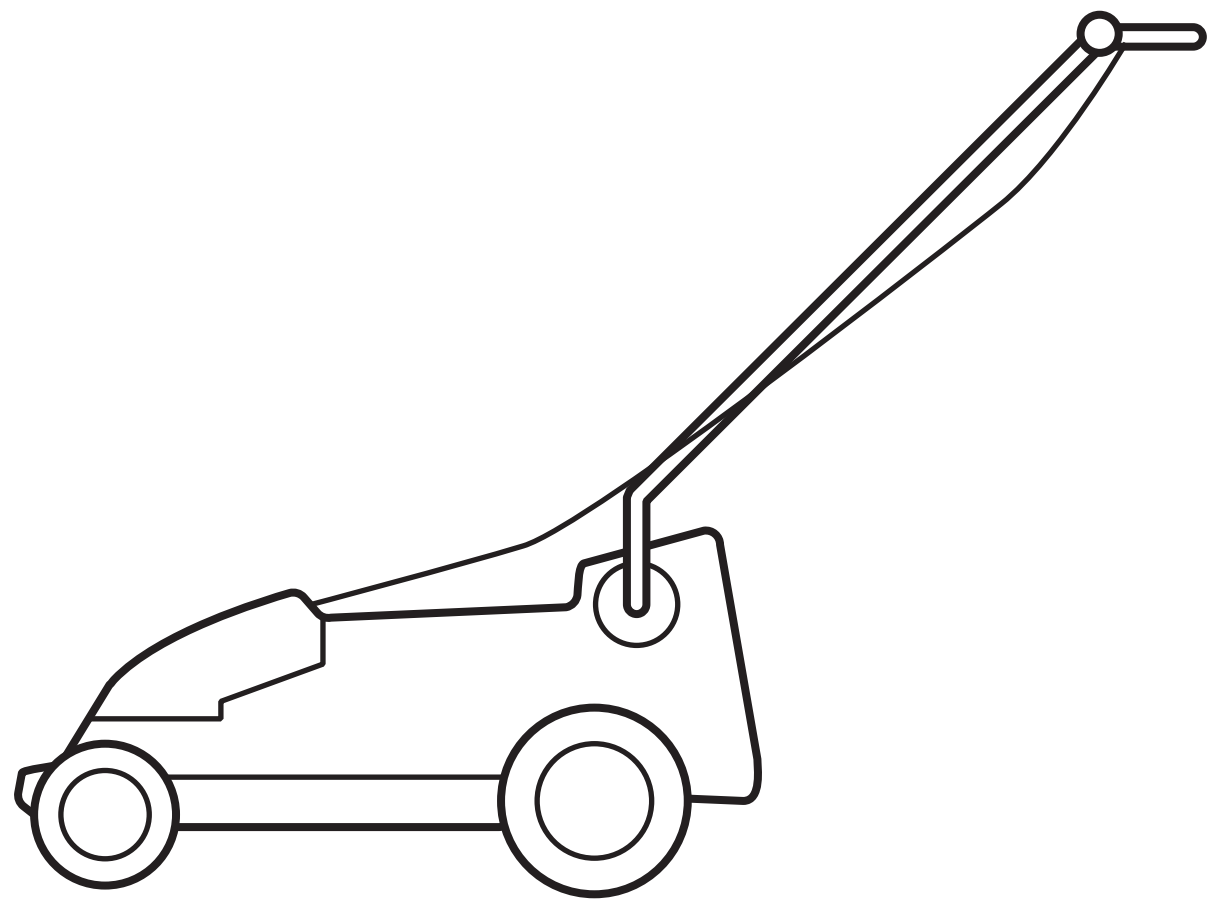
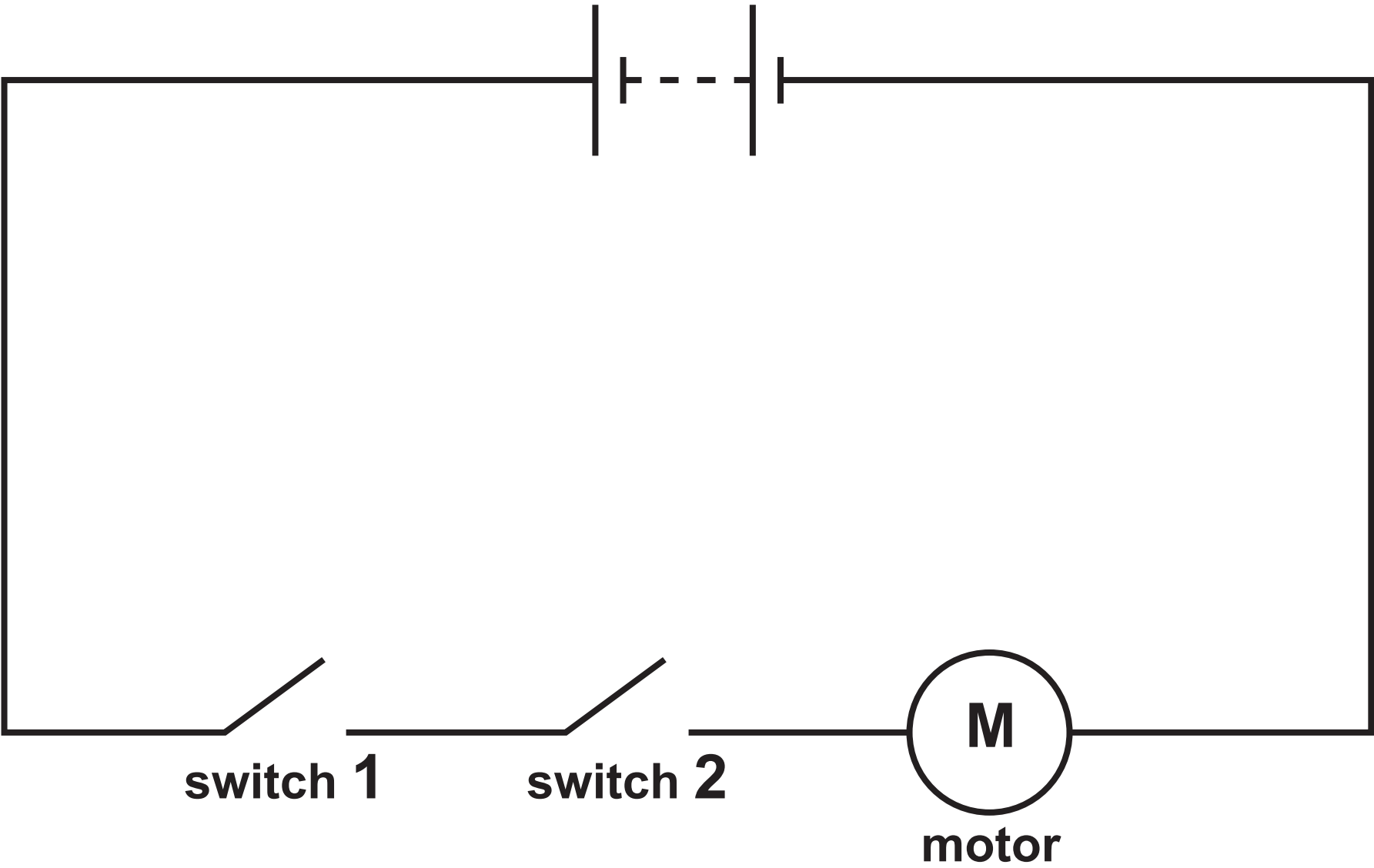
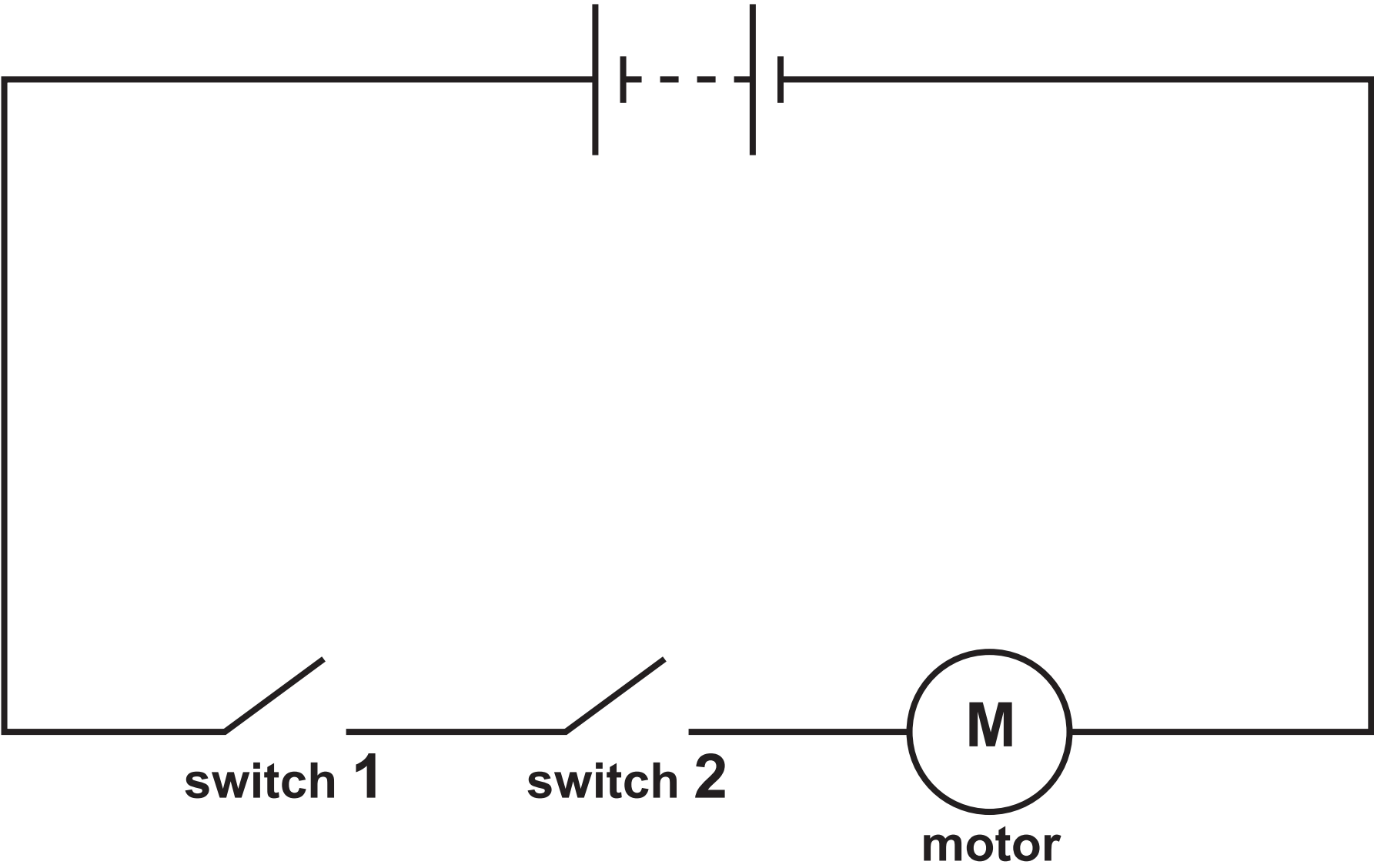


DIAGRAM 1



Question 1(c)

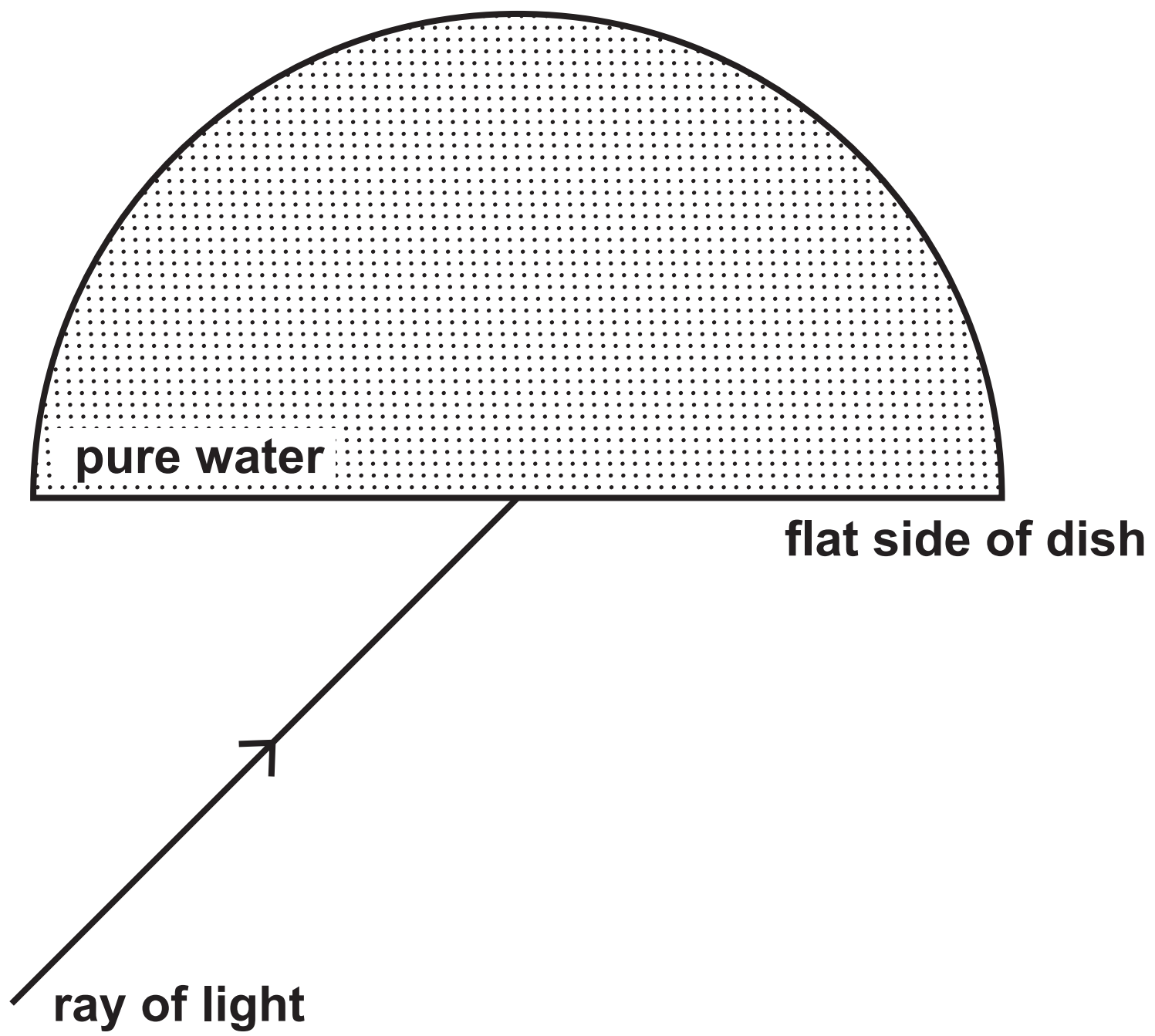
DIAGRAM 2



Question 2(a) – Blank page

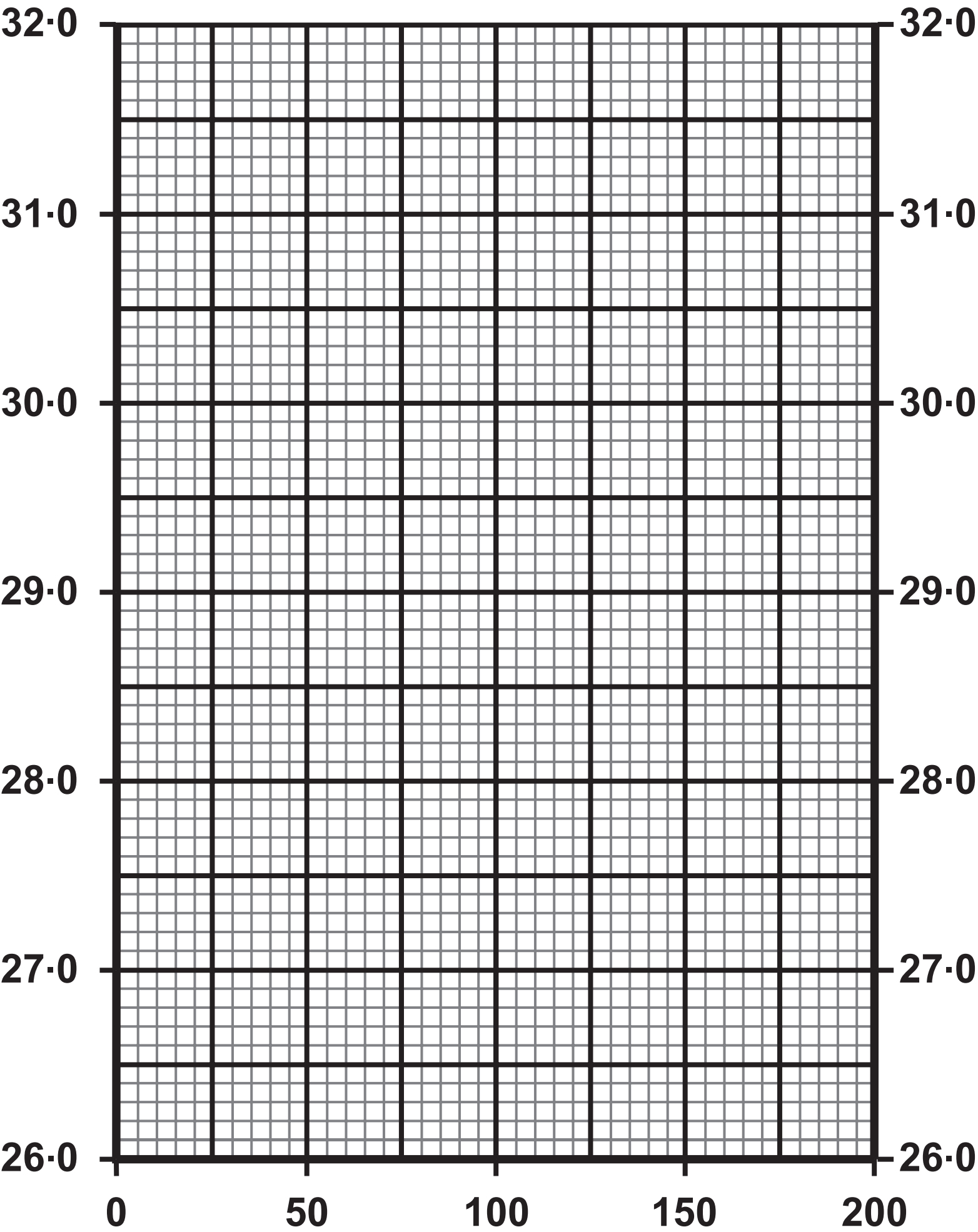
Question 3(a)

| Variable | Independent | Dependent | Control |
|---------------------|-------------|-----------|---------|
| volume of water | | | |
| angle of incidence | | | |
| angle of refraction | | | |
| mass of sugar | | | |
| colour of light | | | |

Question 3(b)

Question 3(c)(i) and 3(c)(iii)

Angle of refraction in $^{\circ}$

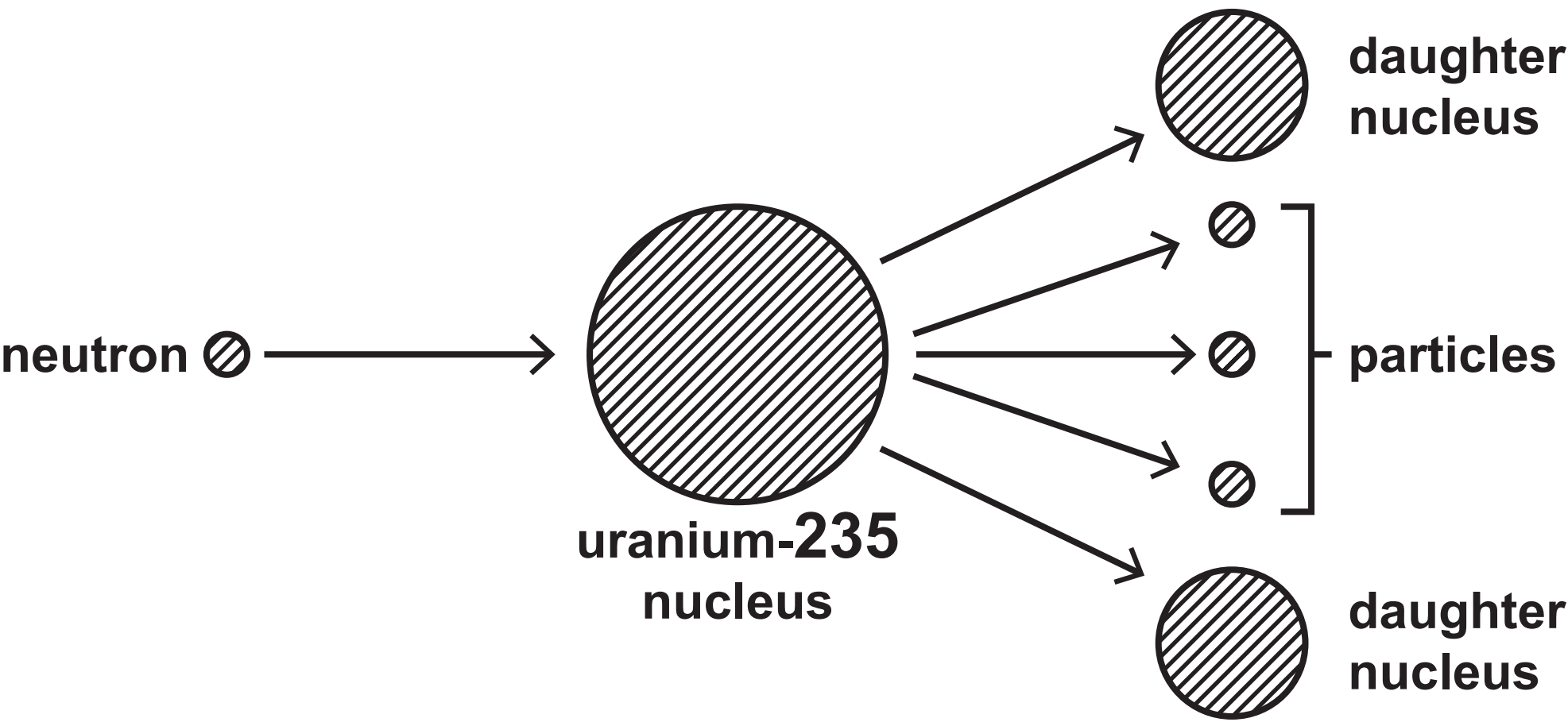


Mass of sugar in g

Question 3(c)(ii)

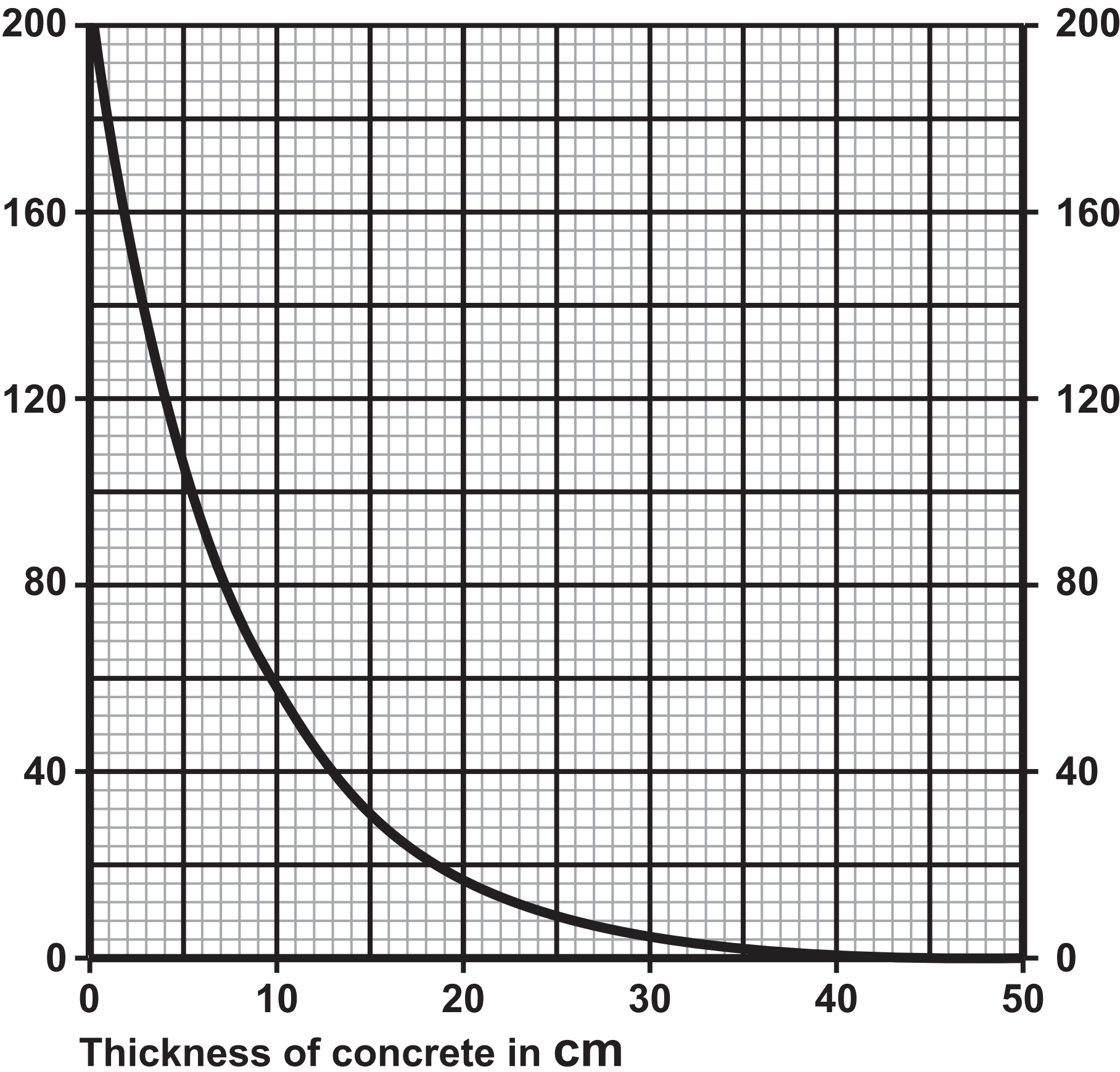
| Mass of sugar in g | Angle of refraction in ° |
|-----------------------|-----------------------------|
| 0 | 32·0 |
| 25 | 31·2 |
| 50 | 30·4 |
| 75 | 29·7 |
| 100 | 28·9 |
| 125 | 28·3 |
| 150 | 26·5 |
| 175 | 27·0 |

Question 4(a)

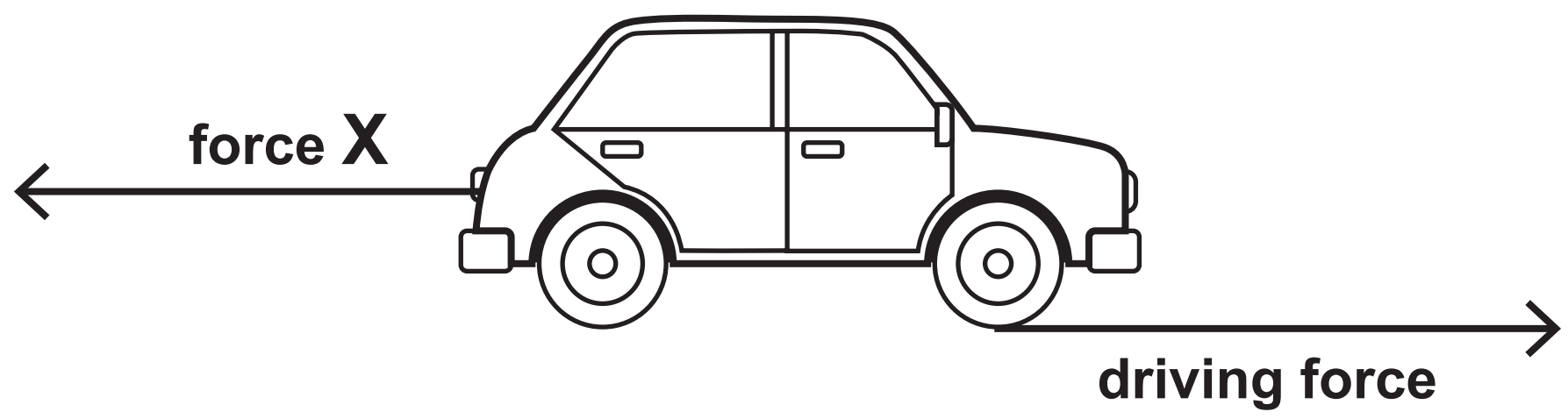


Question 4(b)(ii)

Energy of gamma radiation
in arbitrary units

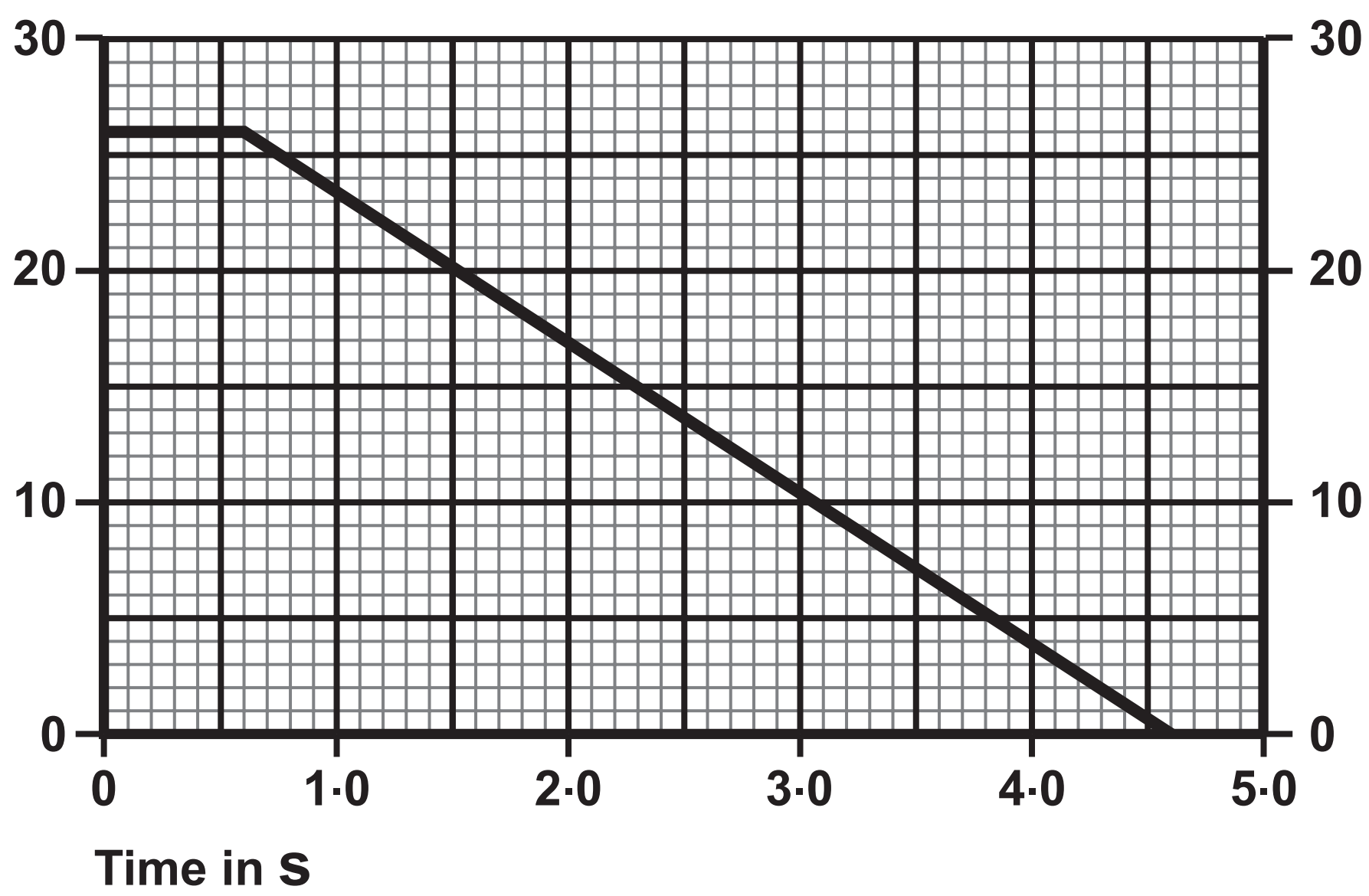


Question 5(a)

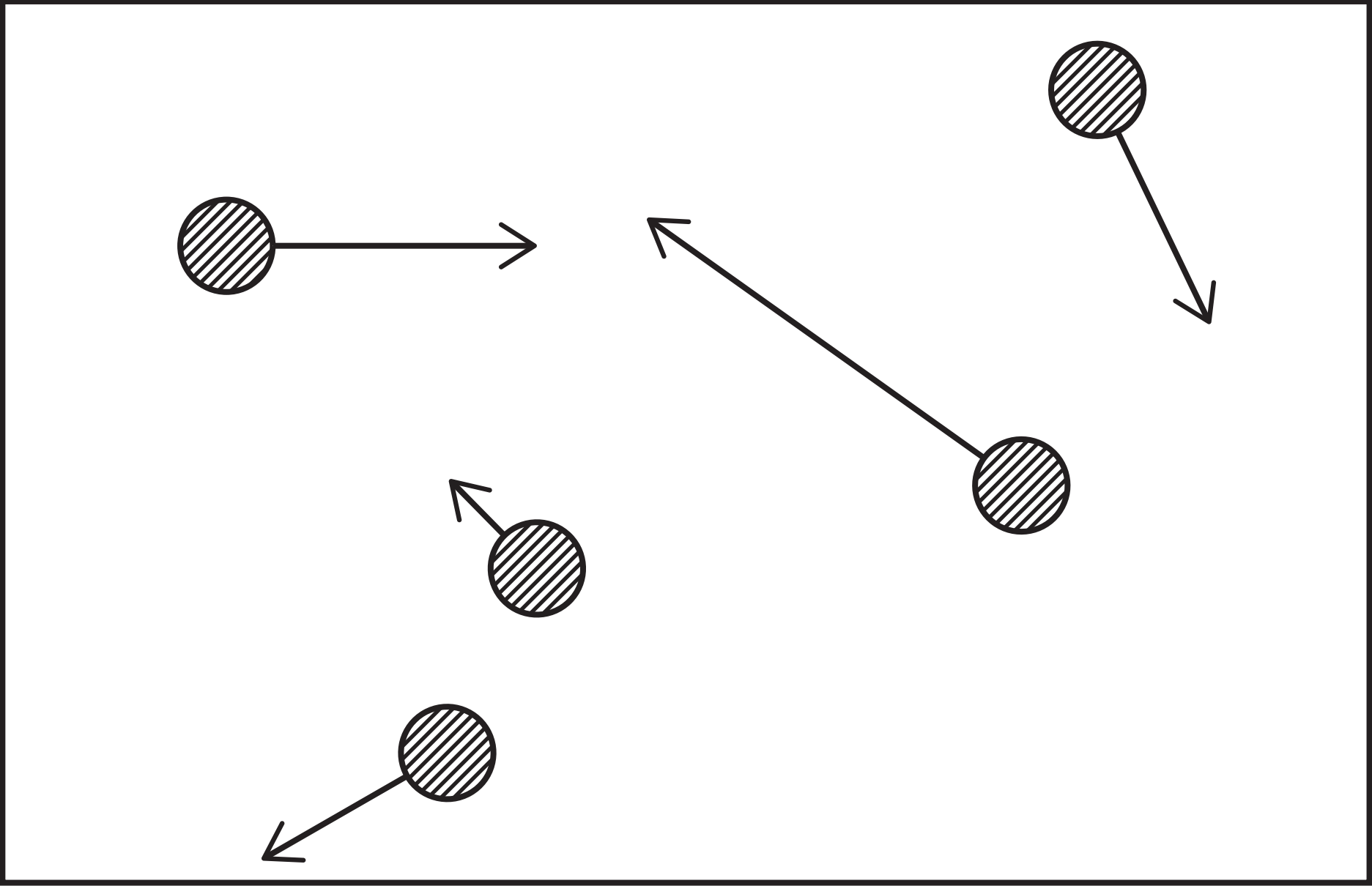


Question 5(b)

Velocity in m/s



Question 6(a)

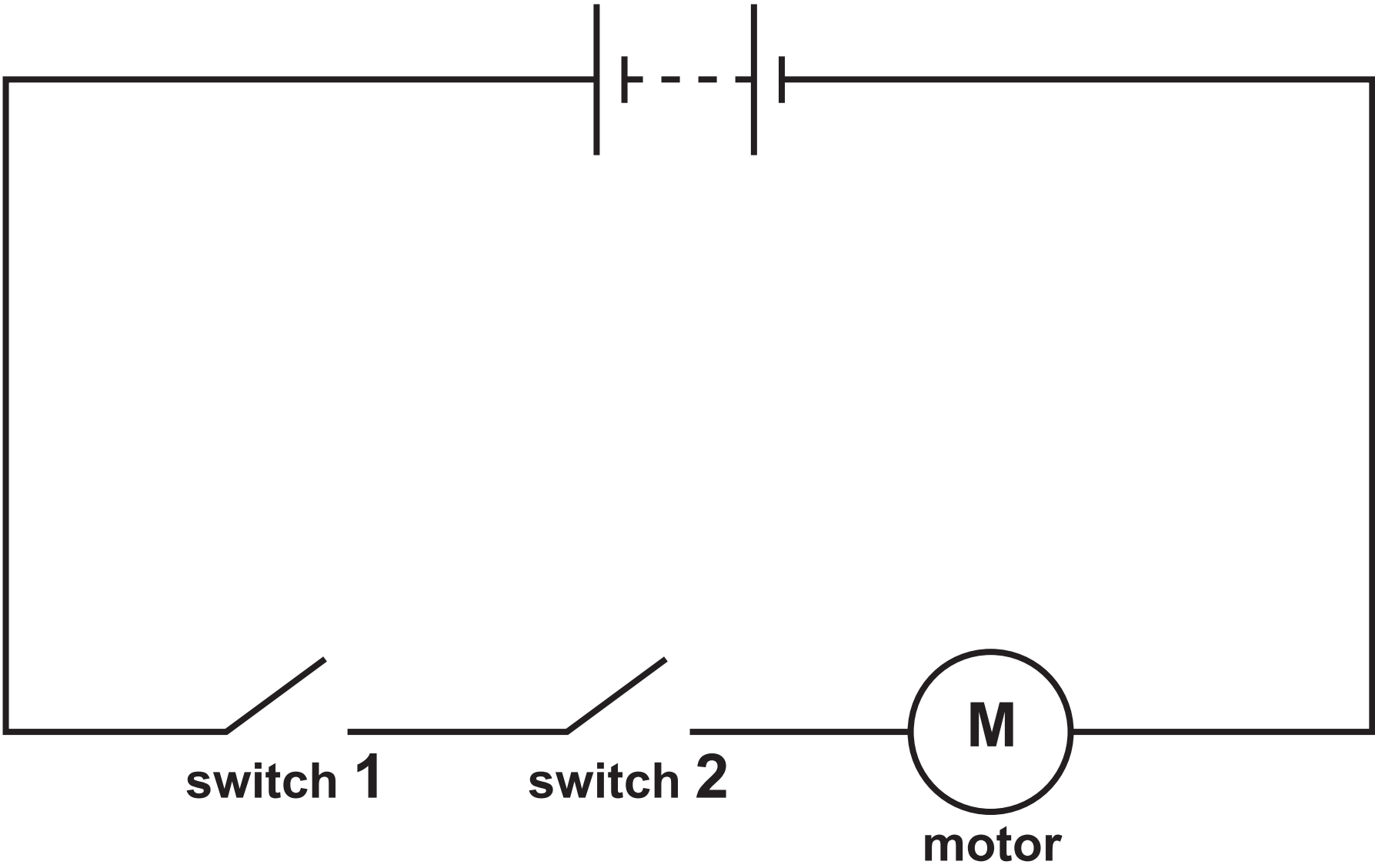


Question 6(b)

| | |
|--|----------------------------------|
| Mass of one gas particle | $7.3 \times 10^{-26} \text{ kg}$ |
| Mean kinetic energy of one gas particle | $9.8 \times 10^{-21} \text{ J}$ |
| Total mean kinetic energy of gas particles | $1.2 \times 10^4 \text{ J}$ |

Question 1(c)

DIAGRAM 2

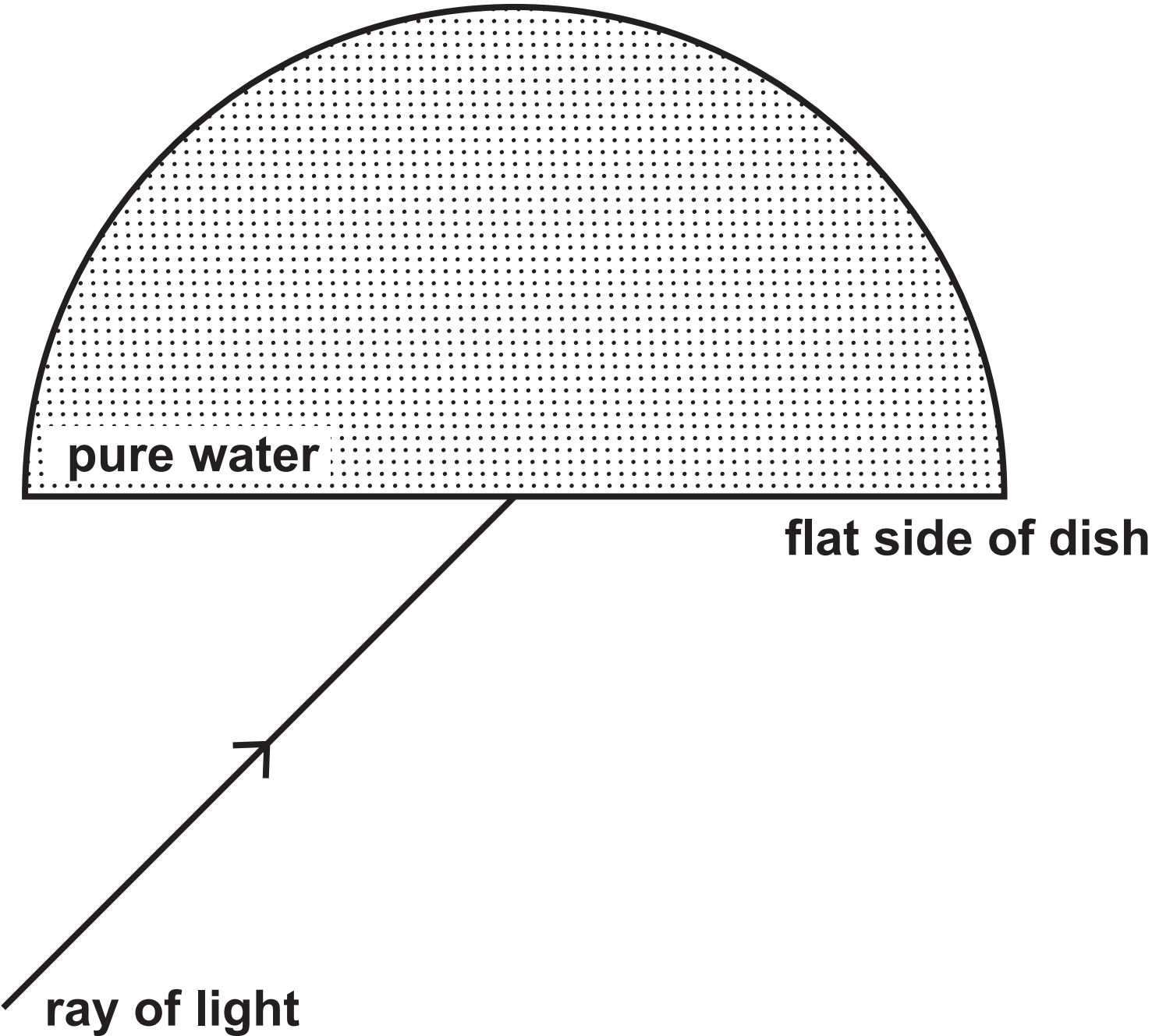


Question 2(a) – Blank page

Question 3(a)

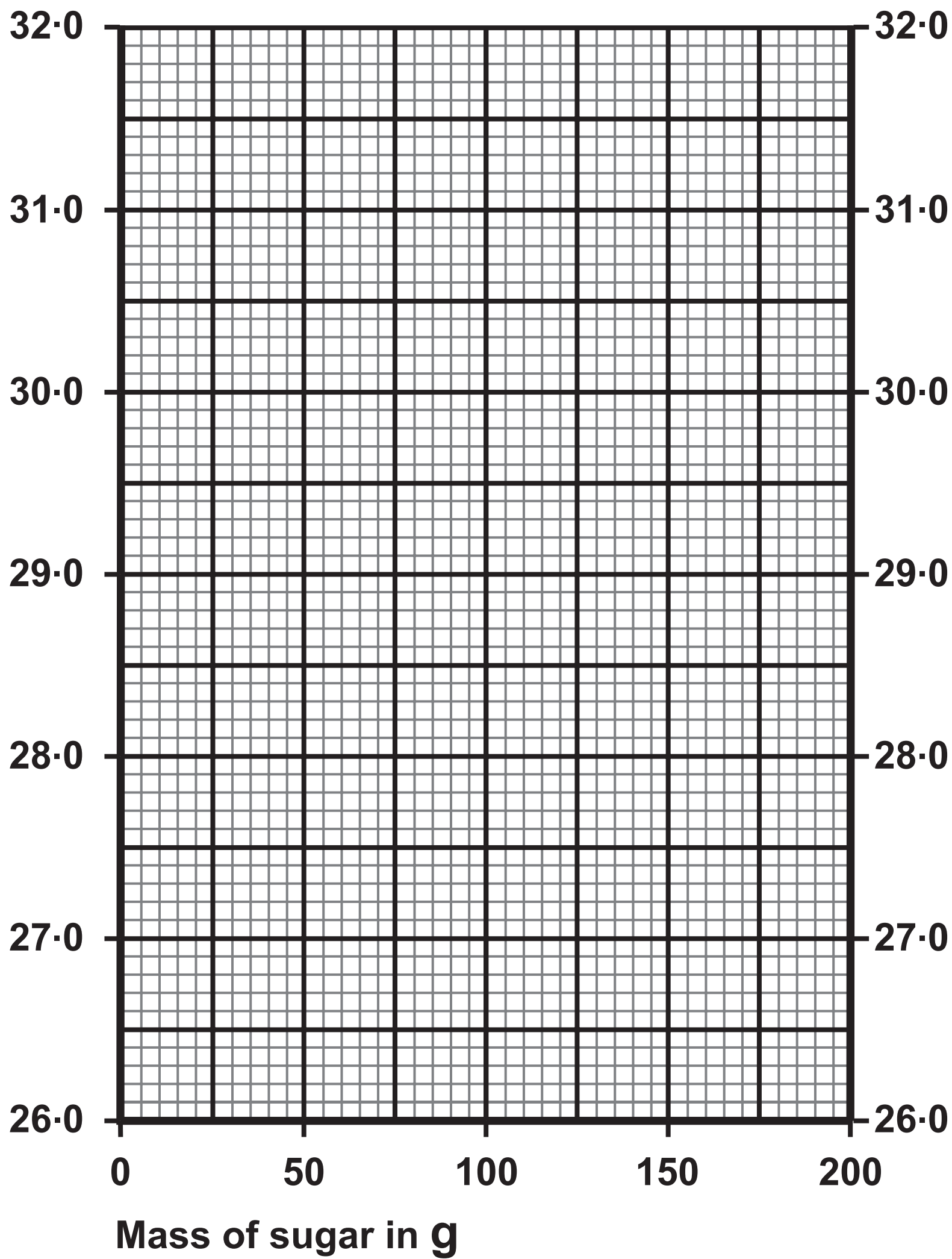
| Variable | Independent | Dependent | Control |
|---------------------|-------------|-----------|---------|
| volume of water | | | |
| angle of incidence | | | |
| angle of refraction | | | |
| mass of sugar | | | |
| colour of light | | | |

Question 3(b)



Question 3(c)(i) and 3(c)(iii)

Angle of refraction in $^{\circ}$



Question 3(c)(ii)

| Mass of sugar in g | Angle of refraction in ° |
|-----------------------|-----------------------------|
| 0 | 32·0 |
| 25 | 31·2 |
| 50 | 30·4 |
| 75 | 29·7 |
| 100 | 28·9 |
| 125 | 28·3 |
| 150 | 26·5 |
| 175 | 27·0 |

Question 1

(Source adapted from: <https://www.shutterstock.com/image-photo/norwich-norfolk-uk-september-4-2021-2036487353>)