Physics
Science (Double Award) 4SD0
Paper: 1P

Time: 2 hours plus your additional time allowance

Diagram Booklet

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

Surname	
Other names	
Centre Number	
Candidate Number	

Pearson

INSTRUCTIONS

There may be spare copies of some diagrams in case you need them.
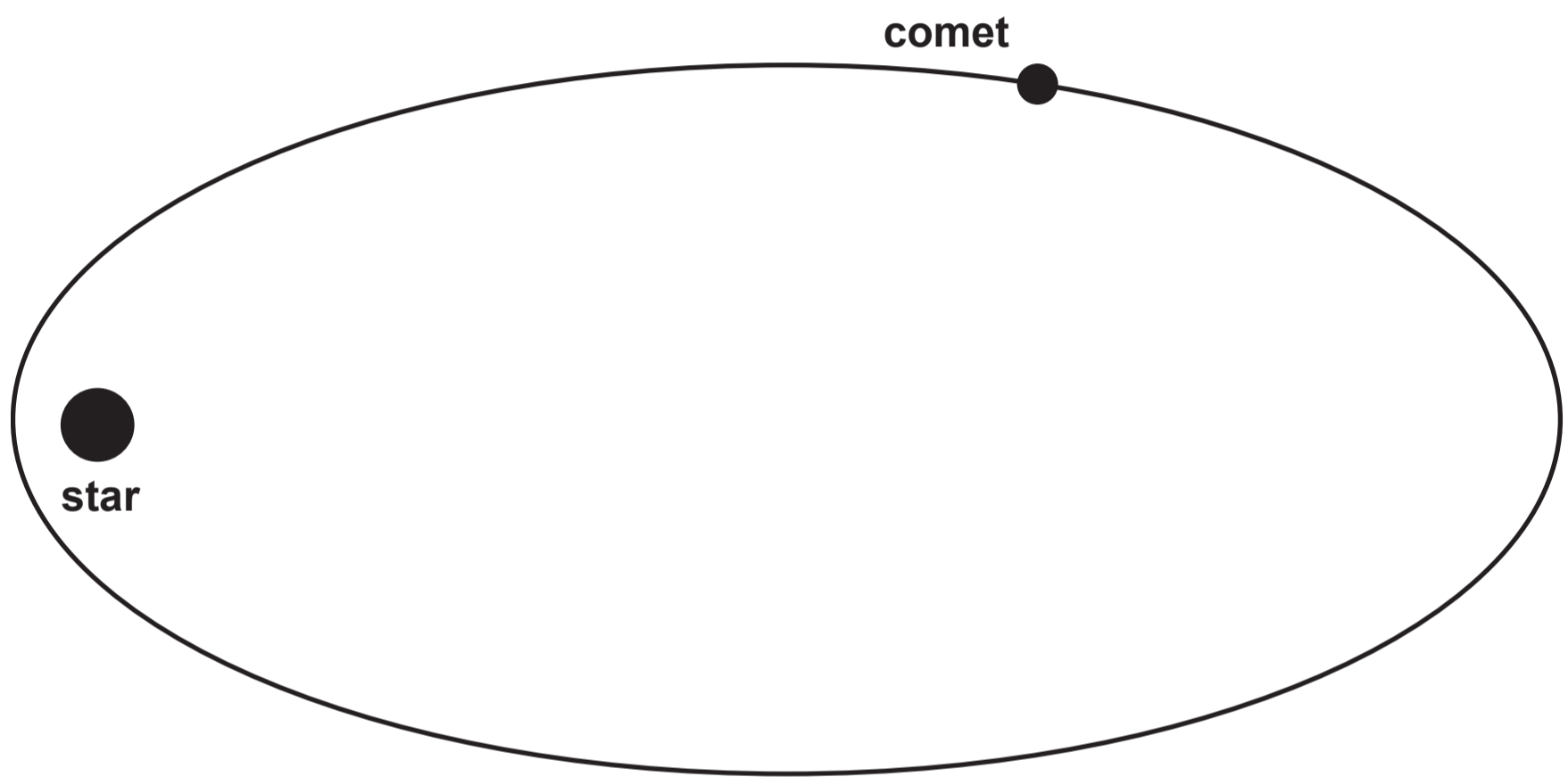
THIS DIAGRAM BOOKLET **MUST** BE RETURNED WITH THE QUESTION PAPER AT THE END OF THE EXAMINATION.

Contents

Page

Question 1(b)

not to scale

comet

star

Question 1(b) (Spare copy)

not to scale

comet

star
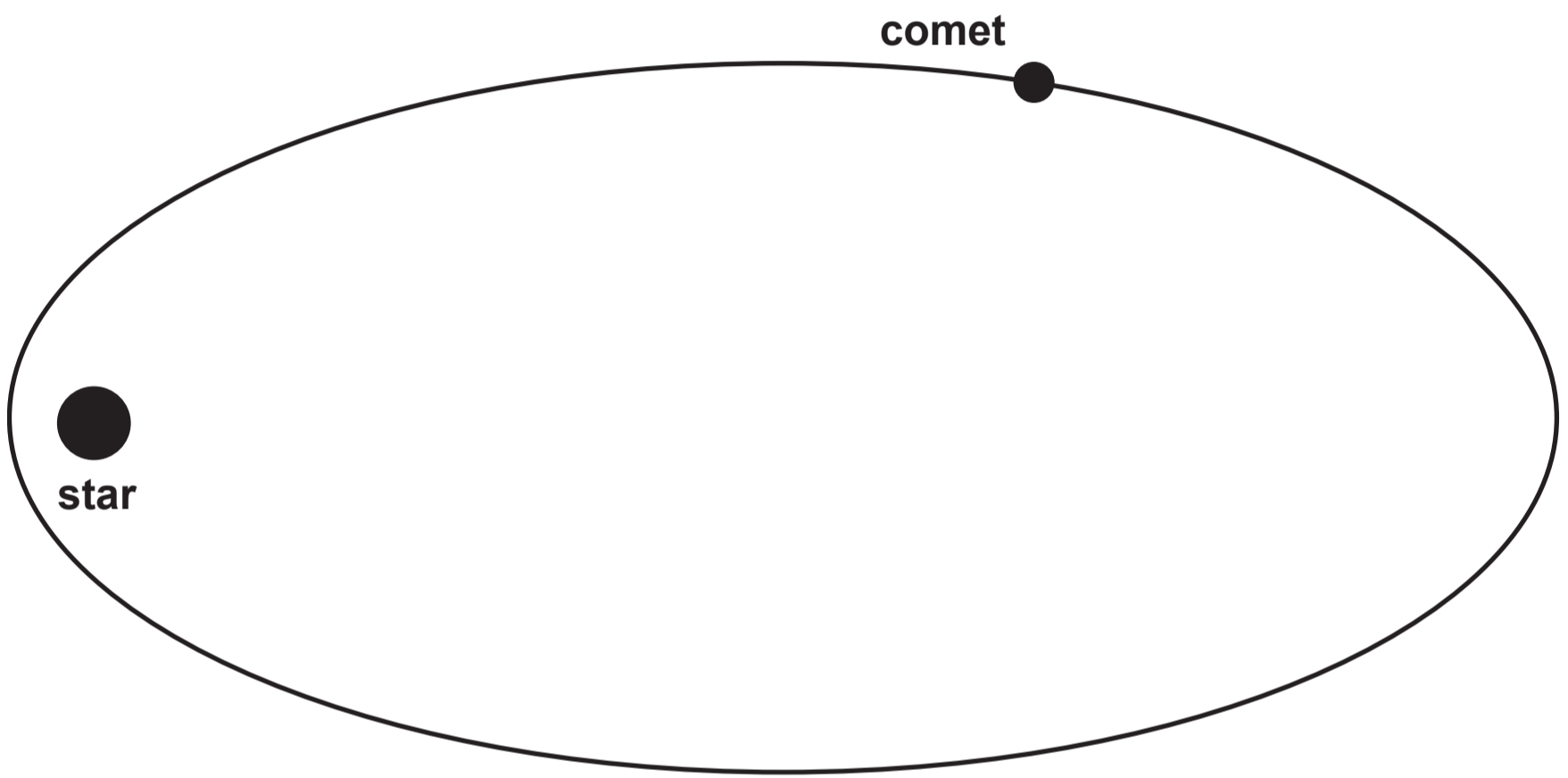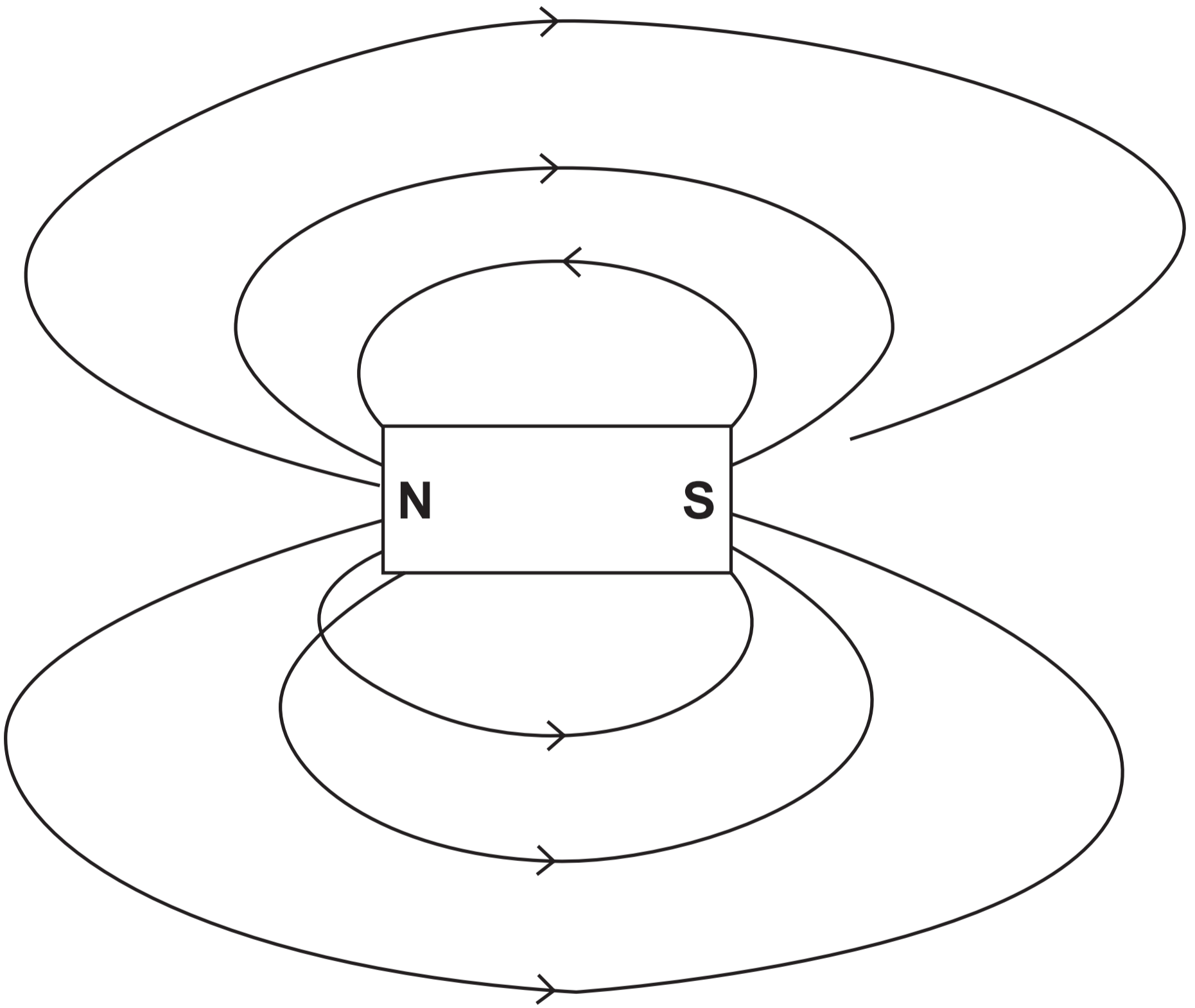
Question 2(b)

Question 2(b) (Spare copy)

Question 3

ball

hole

plastic
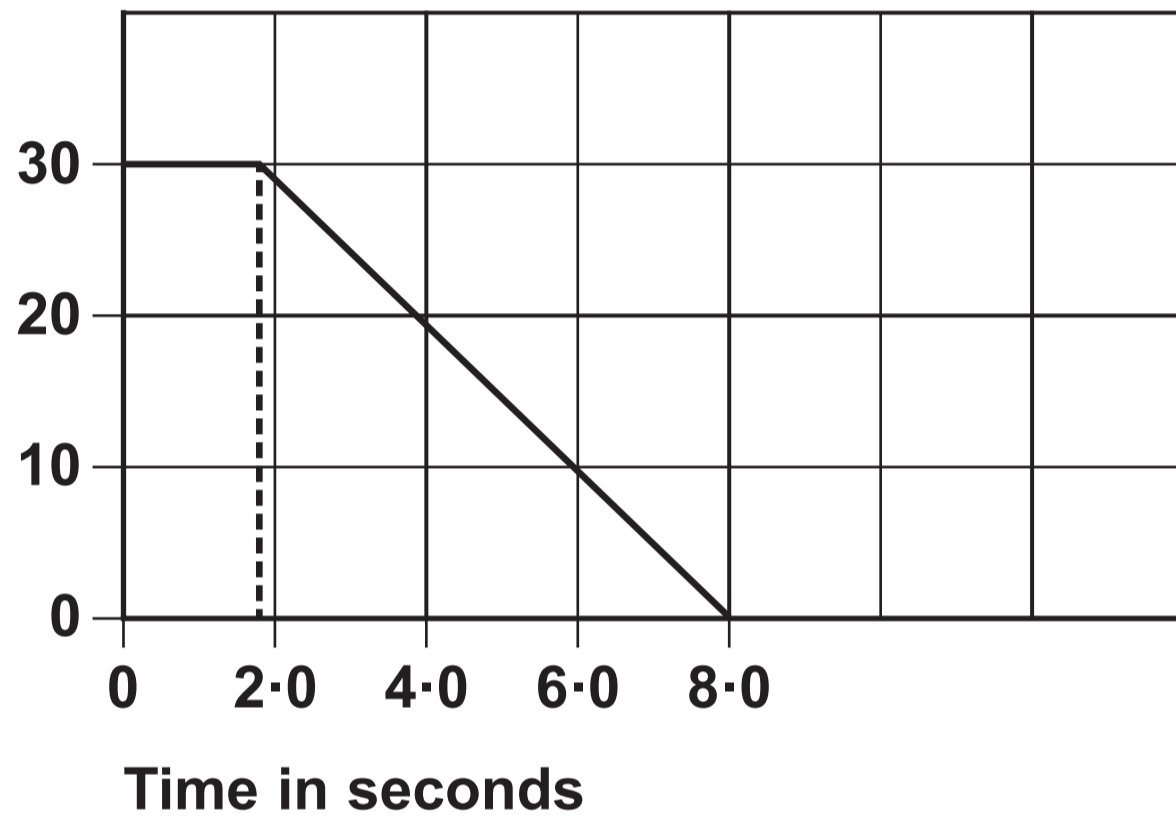box

mousetraps
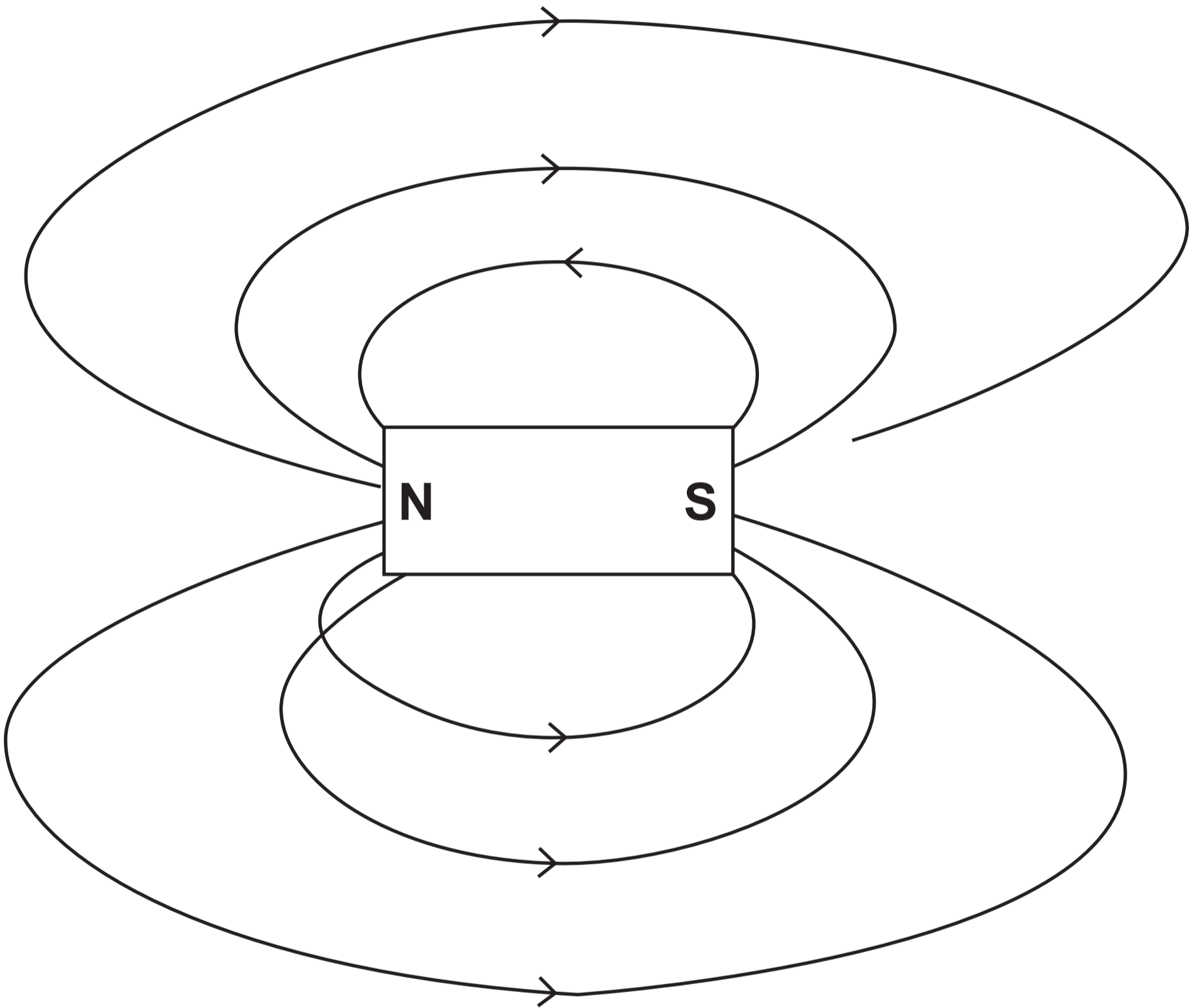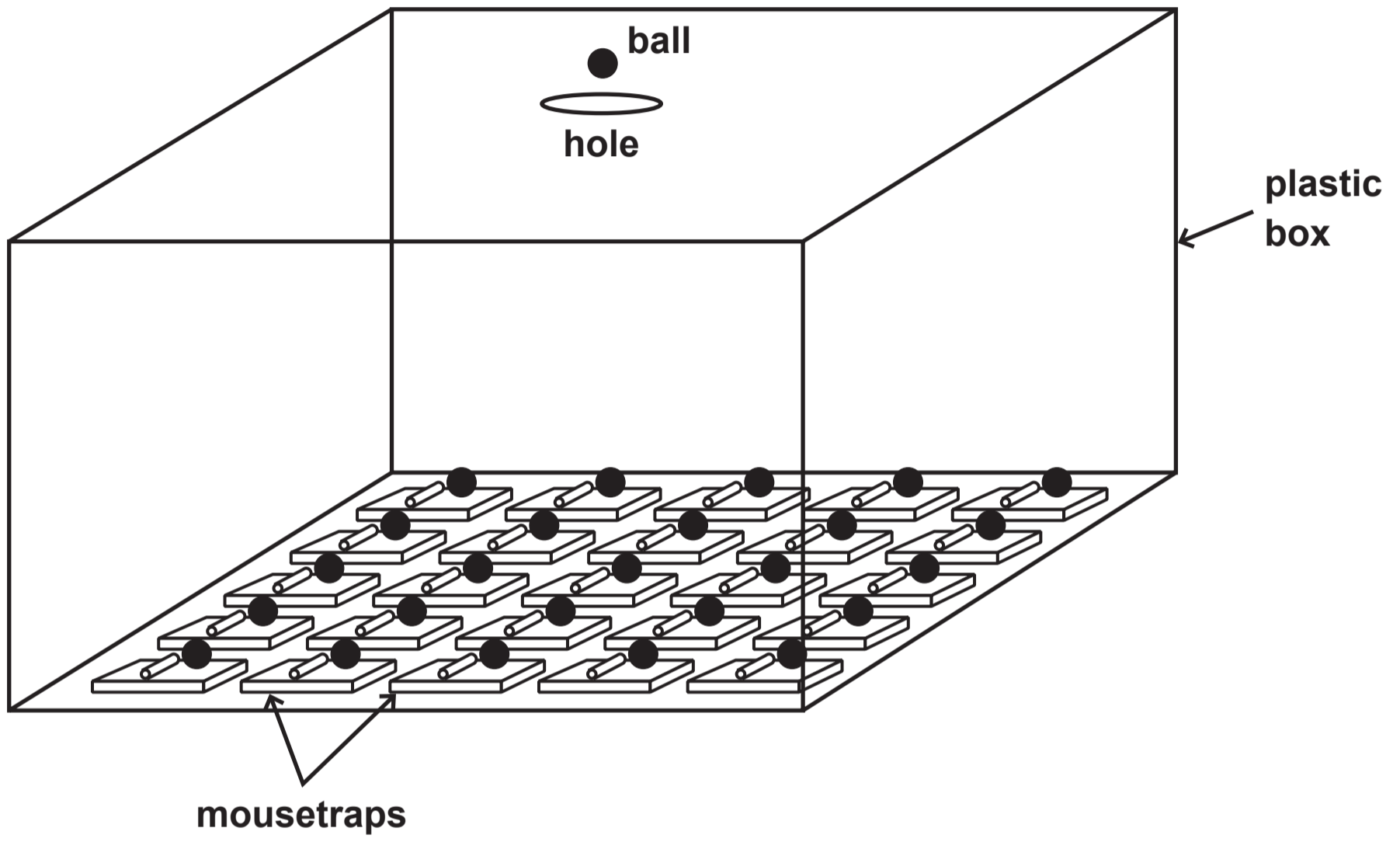
Question 3(c)

absorb

ionise

neutralise

reflect

slow

boron

granite

graphite

paper

uranium

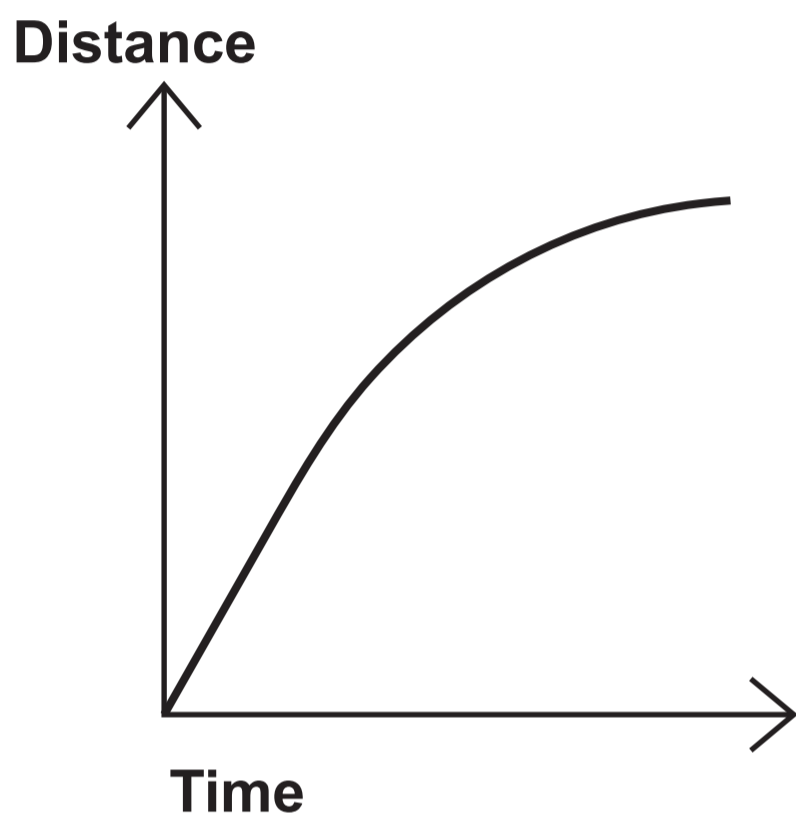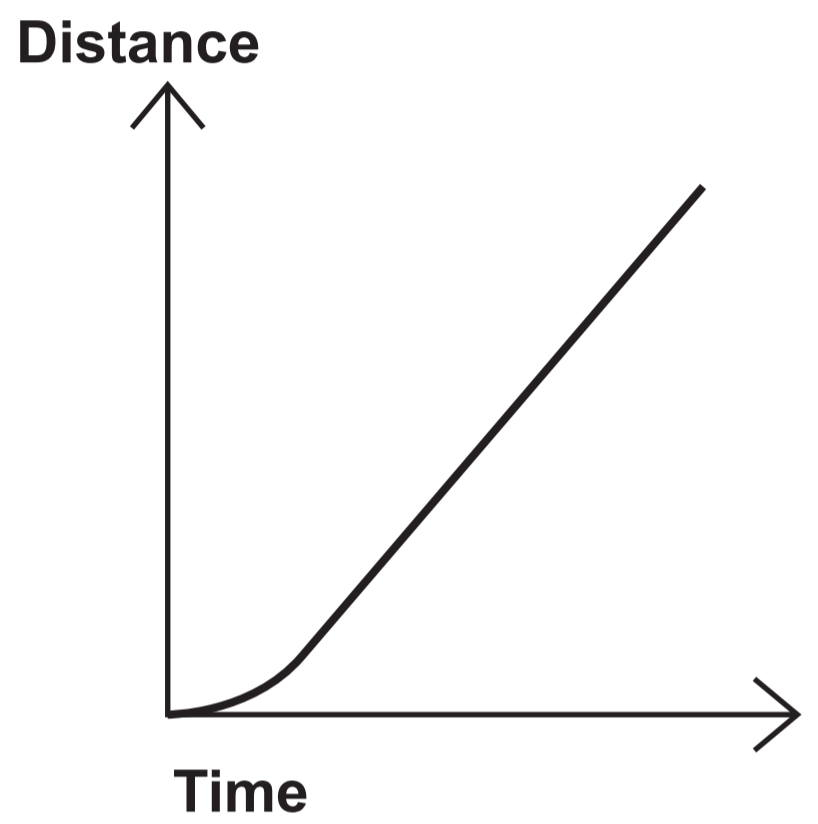**Question 4(a)**

**Velocity
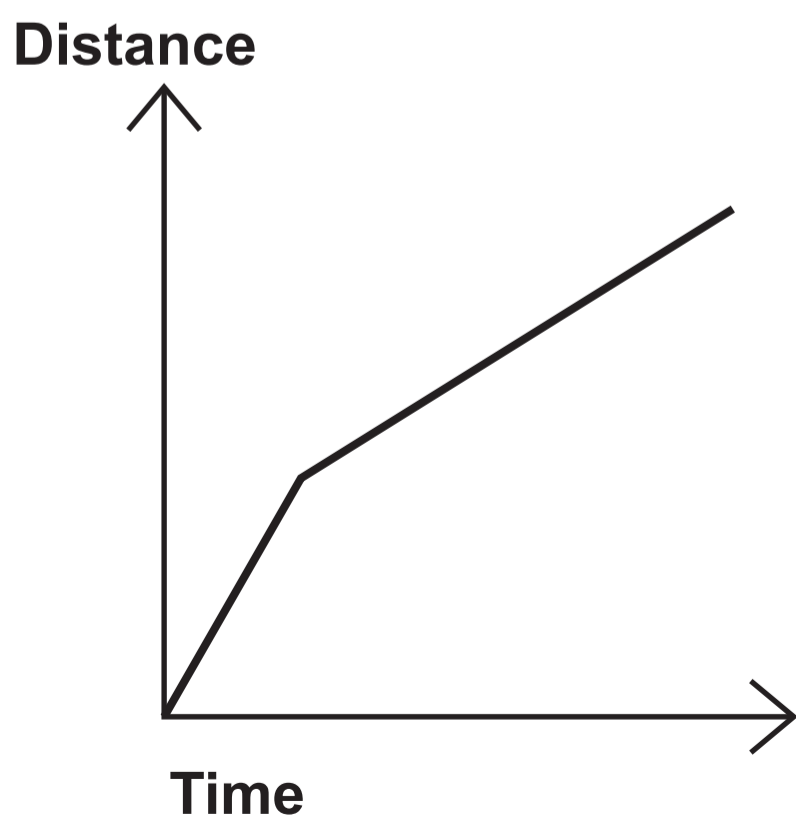in m / s**

Time in seconds

Question 4(b)

A

Distance

Time

B

Distance

Time

C

Distance

Time

D

Distance

Time

Question 5(a)

variable
power supply
+   −

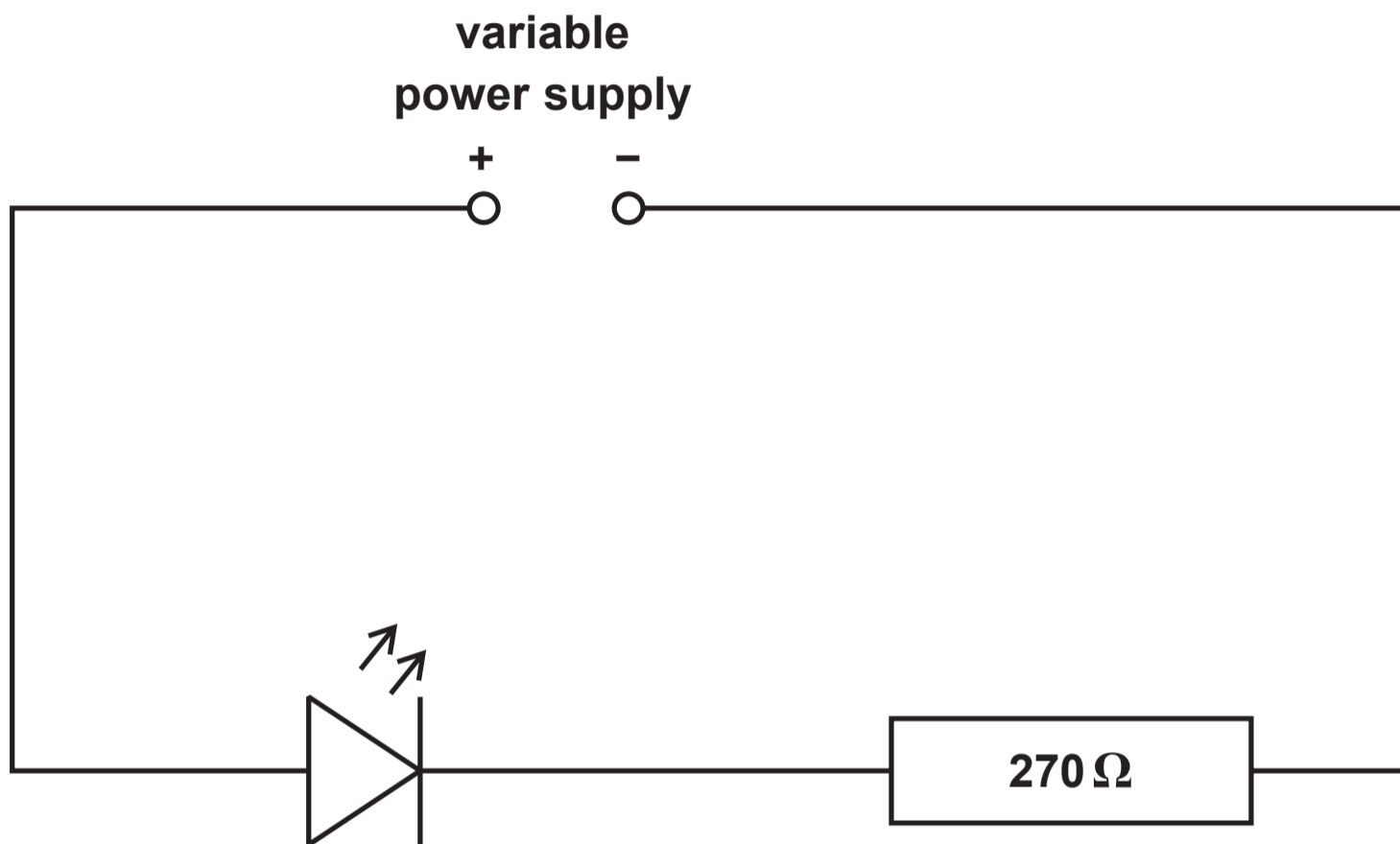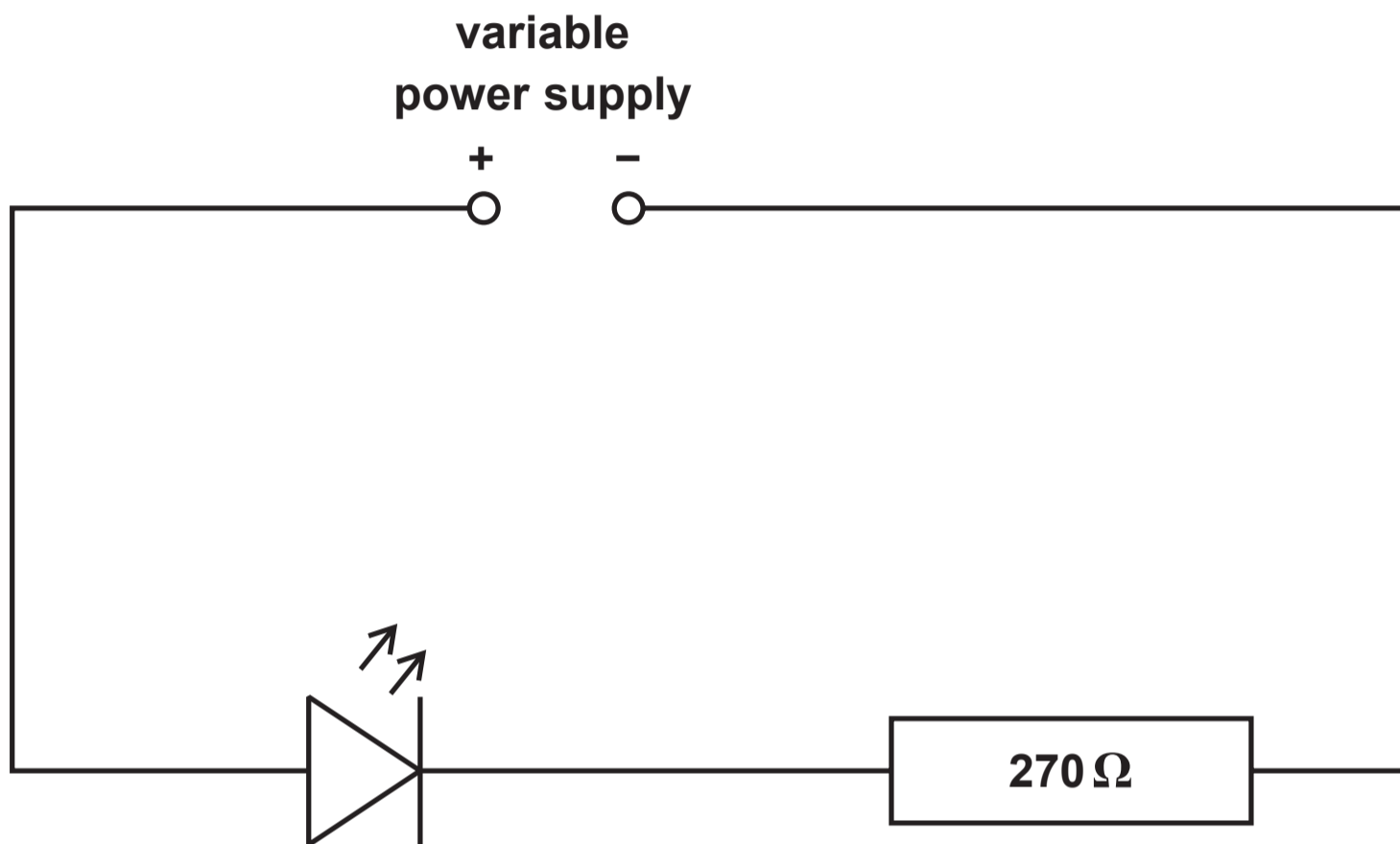270 Ω

Question 5(a) (Spare copy)
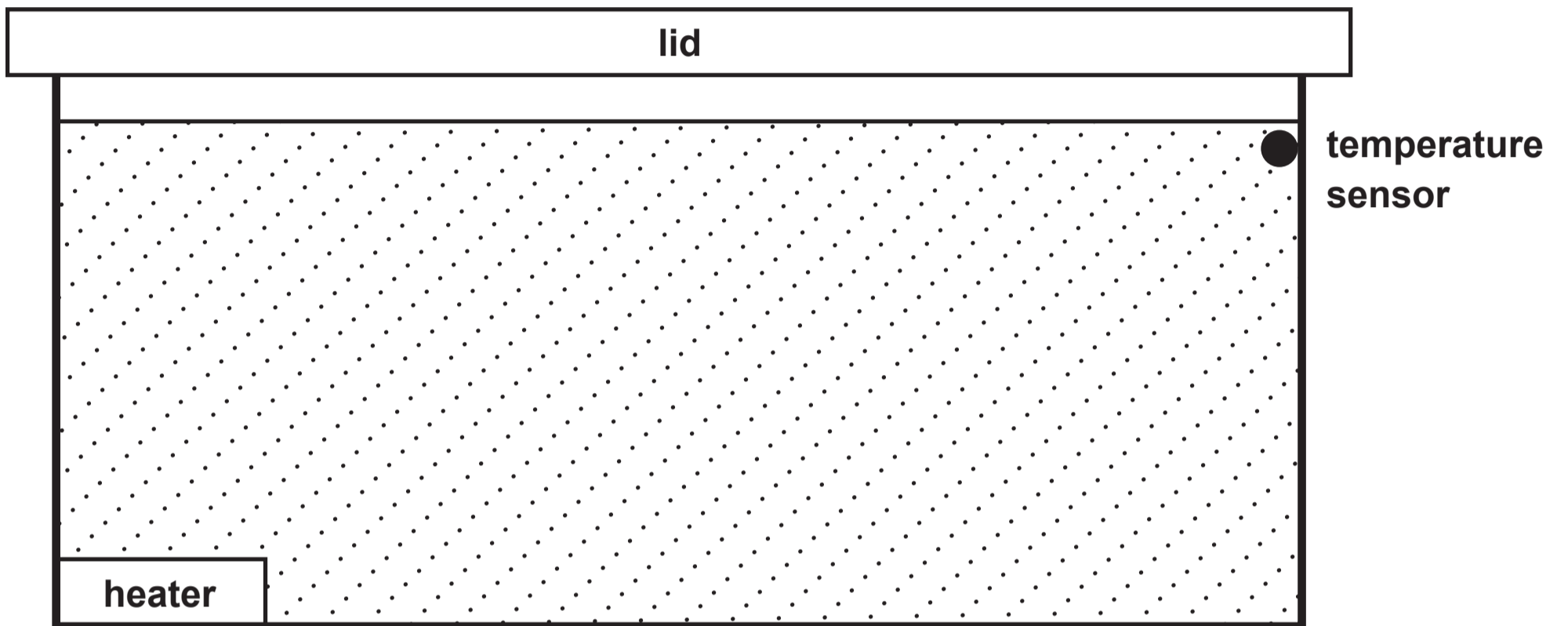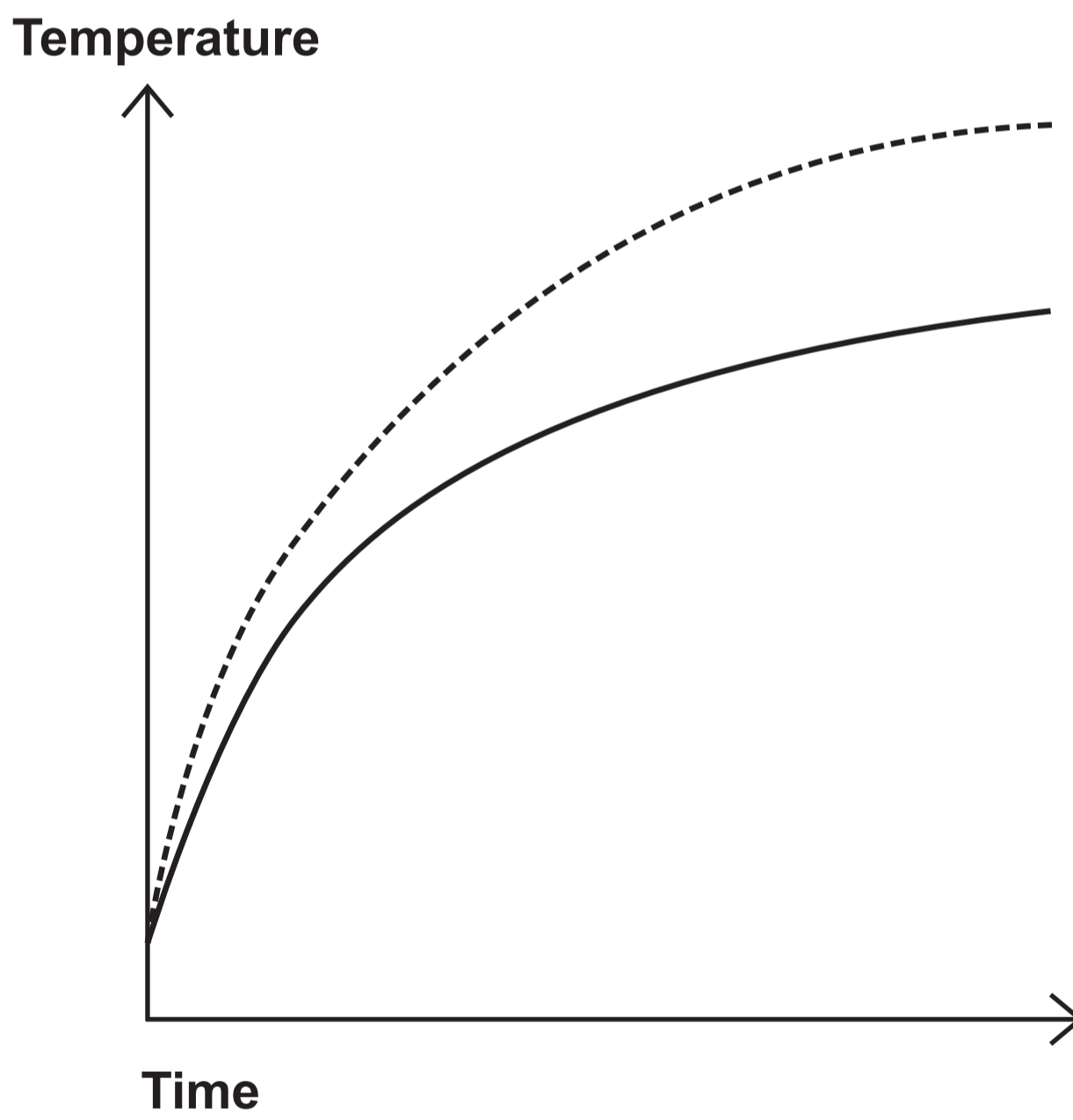
variable
power supply
+   –

270 Ω
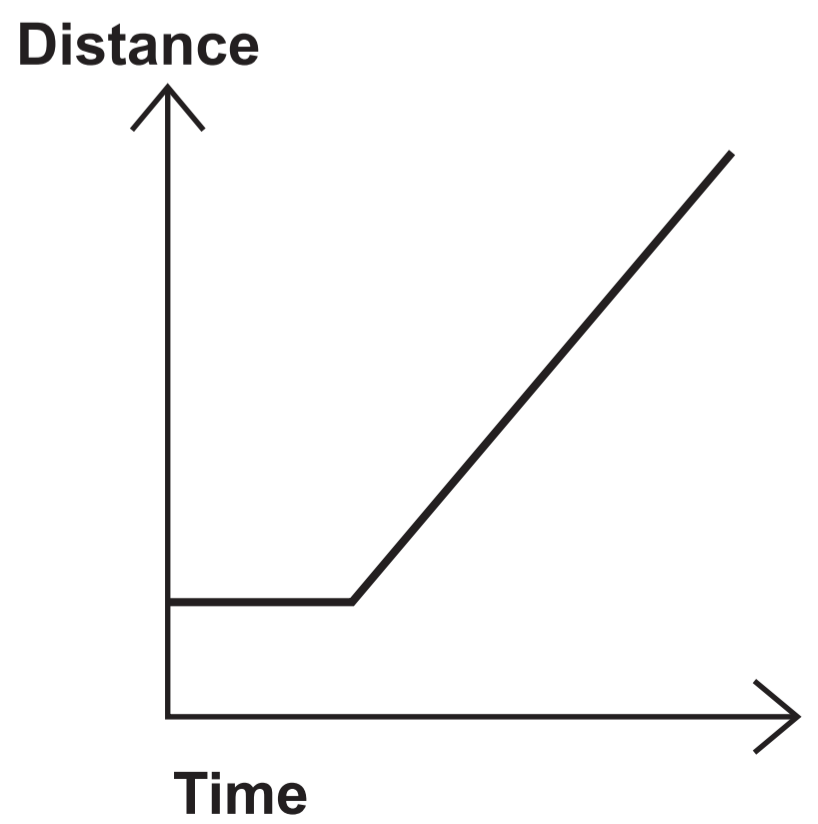
Question 5(b)

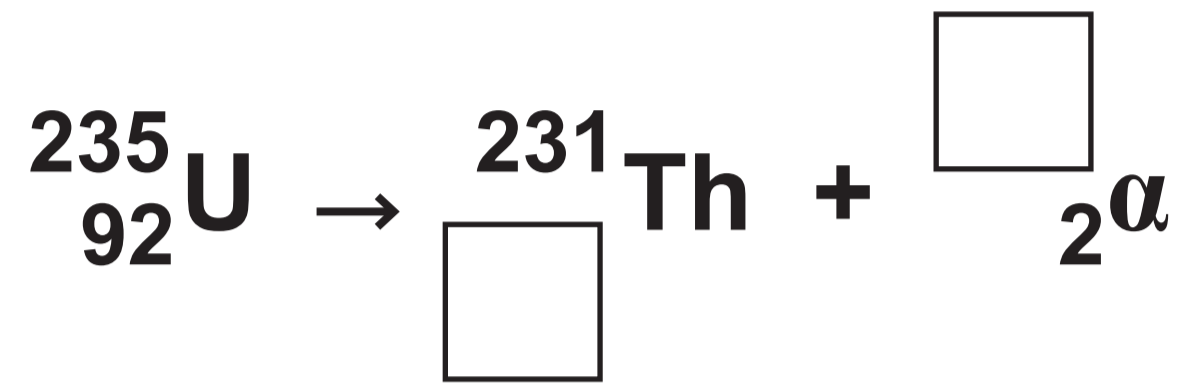**Question 5(b) (Spare copy)**

Question 6(a)

Question 6(a) (Spare copy)

lid	

temperature
sensor

heater

Question 6(b)

KEY

- - - - - - - **container empty**

————— **container full**

Temperature

Time
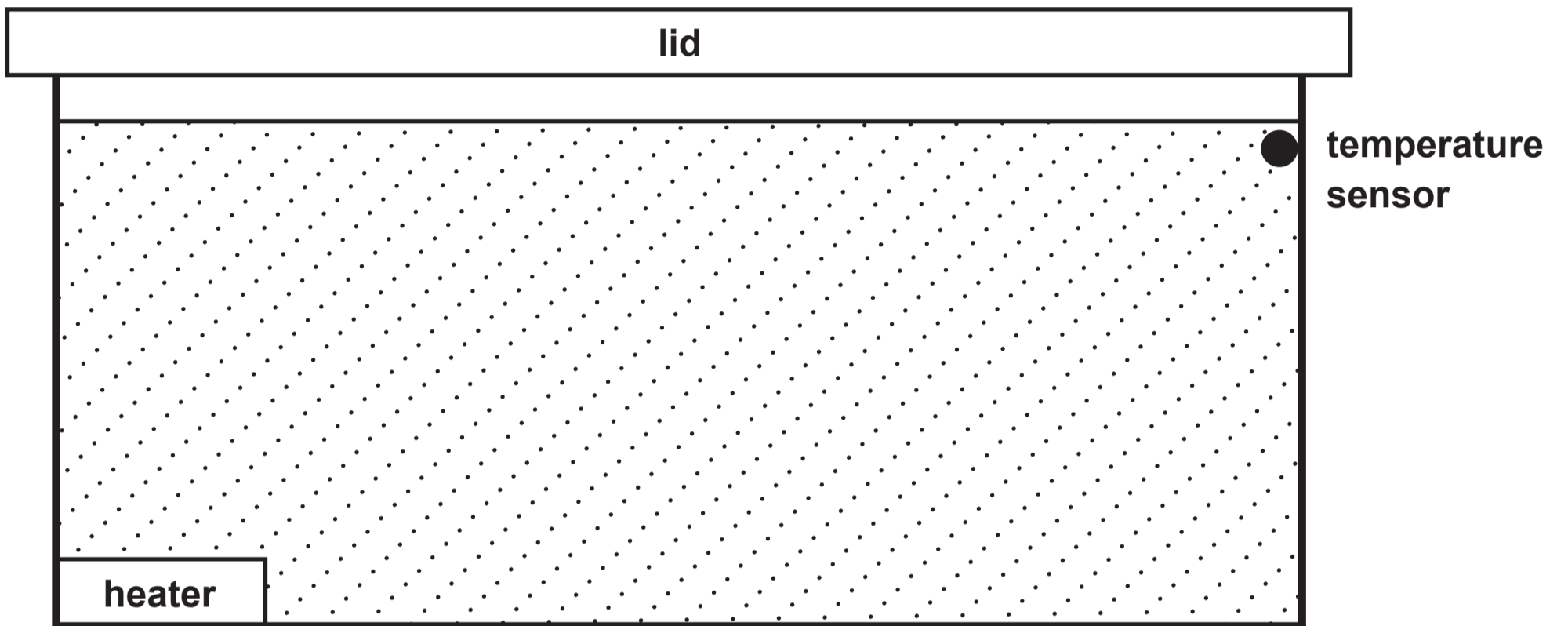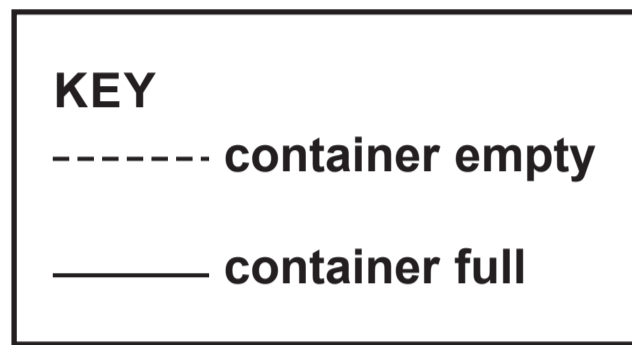
Question 7(a)

Question 7(b)(ii)

$$^{235}_{92}\text{U} \rightarrow {}^{231}_{\square}\text{Th} + {}^{\square}_{2}\alpha$$
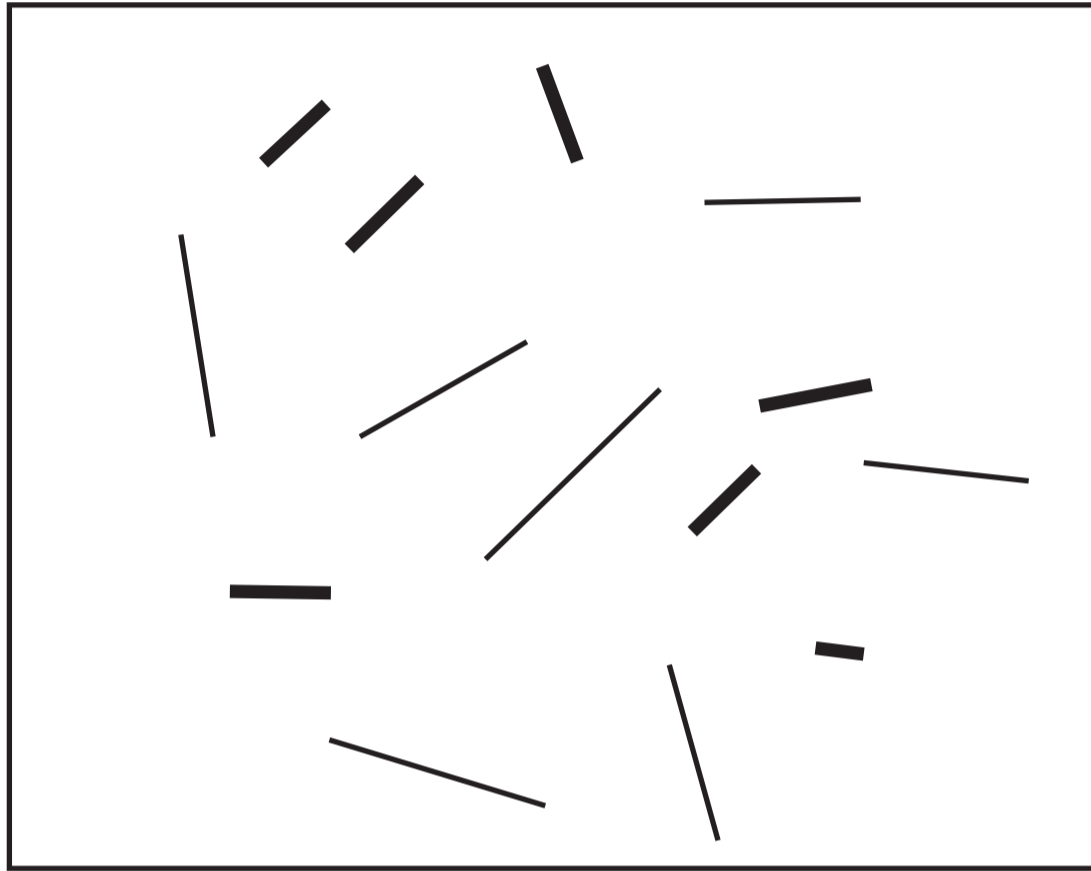
Question 7(b)(ii) (Spare copy)

$$^{235}_{92}\text{U} \rightarrow \ ^{231}_{\boxed{}}\text{Th} + \ ^{\boxed{}}_{2}\alpha$$
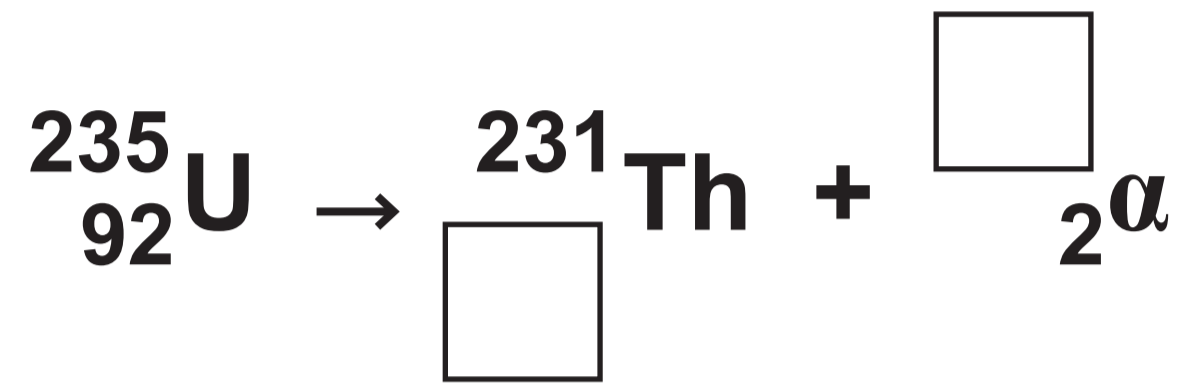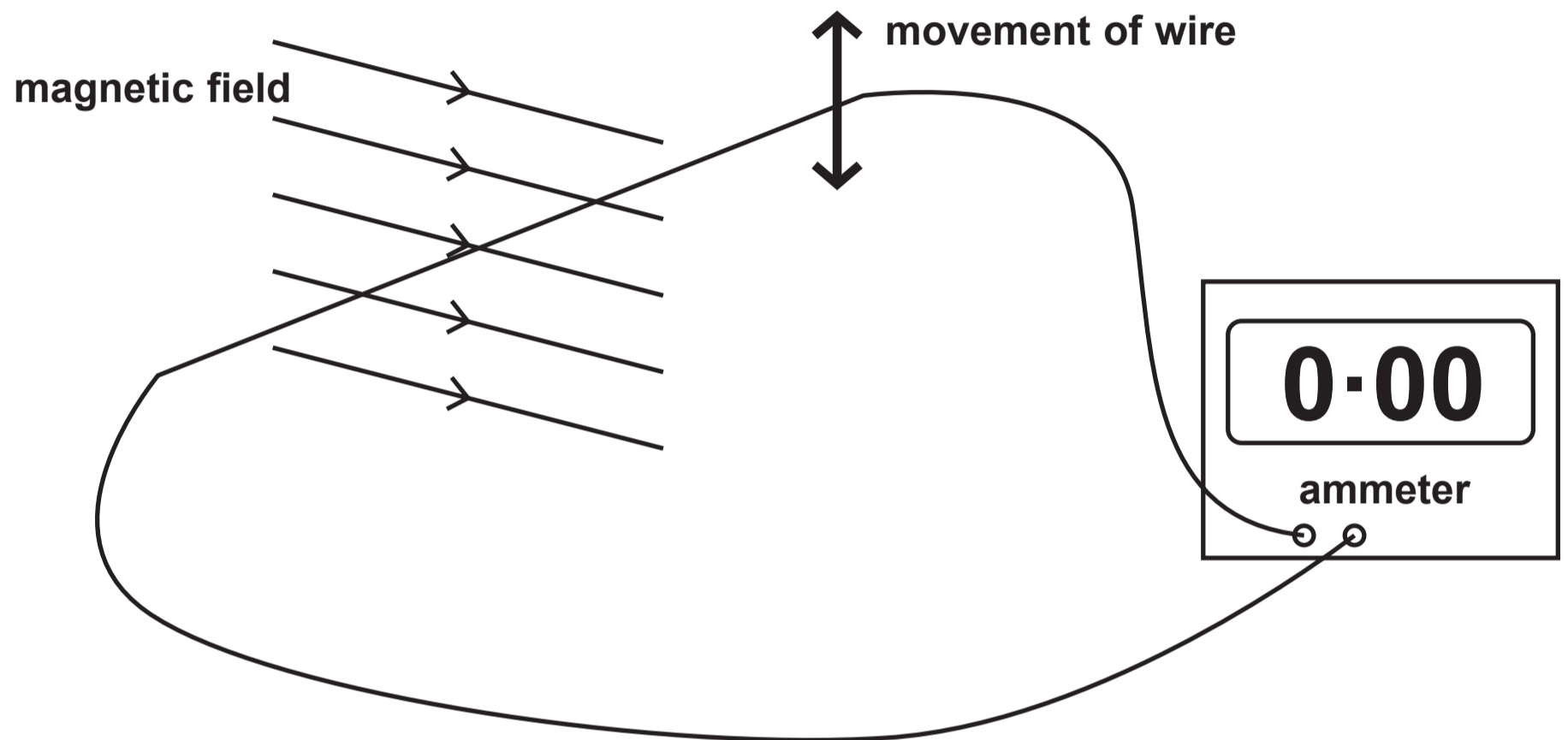
Question 8(b)

Question 9(a)
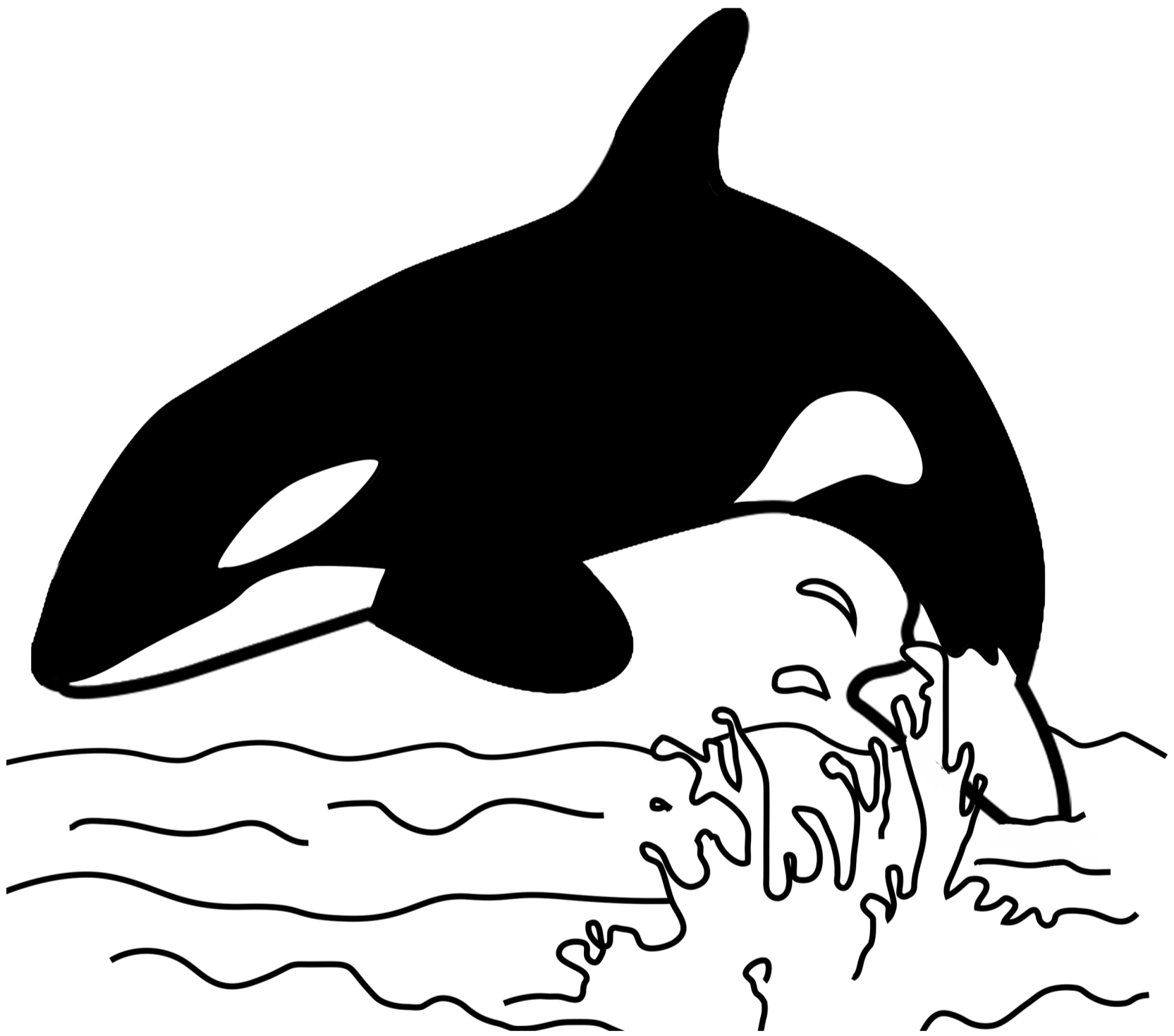
Question 9(b)
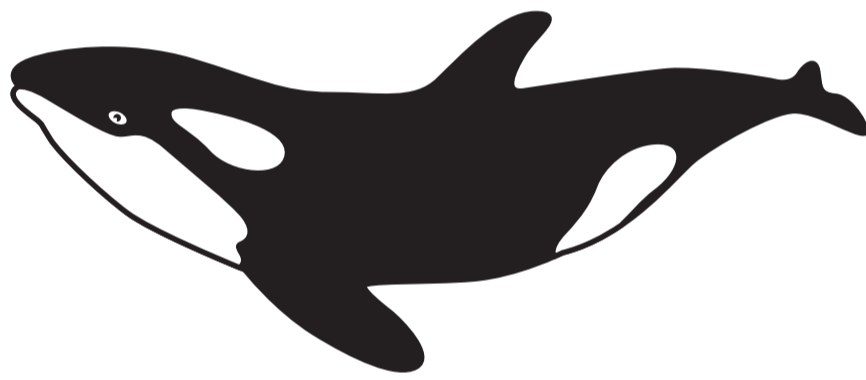
Question 9(b) (Spare copy)

Question 10

piston X

piston Y

cross-sectional area $1 \cdot 2\,m^2$

cross-sectional area $4 \cdot 8\,m^2$

57 cm

oil
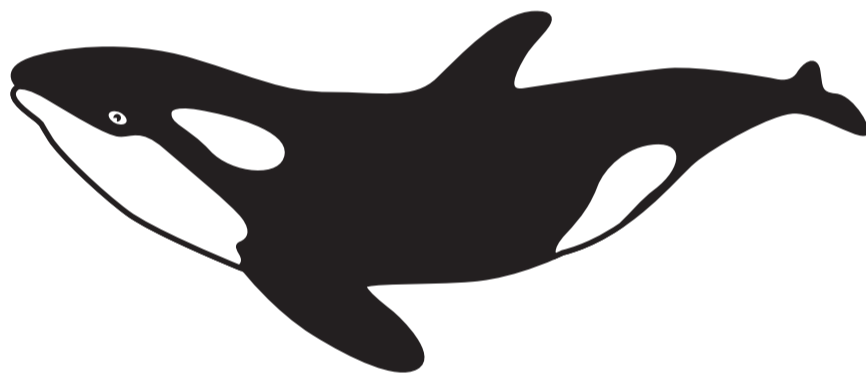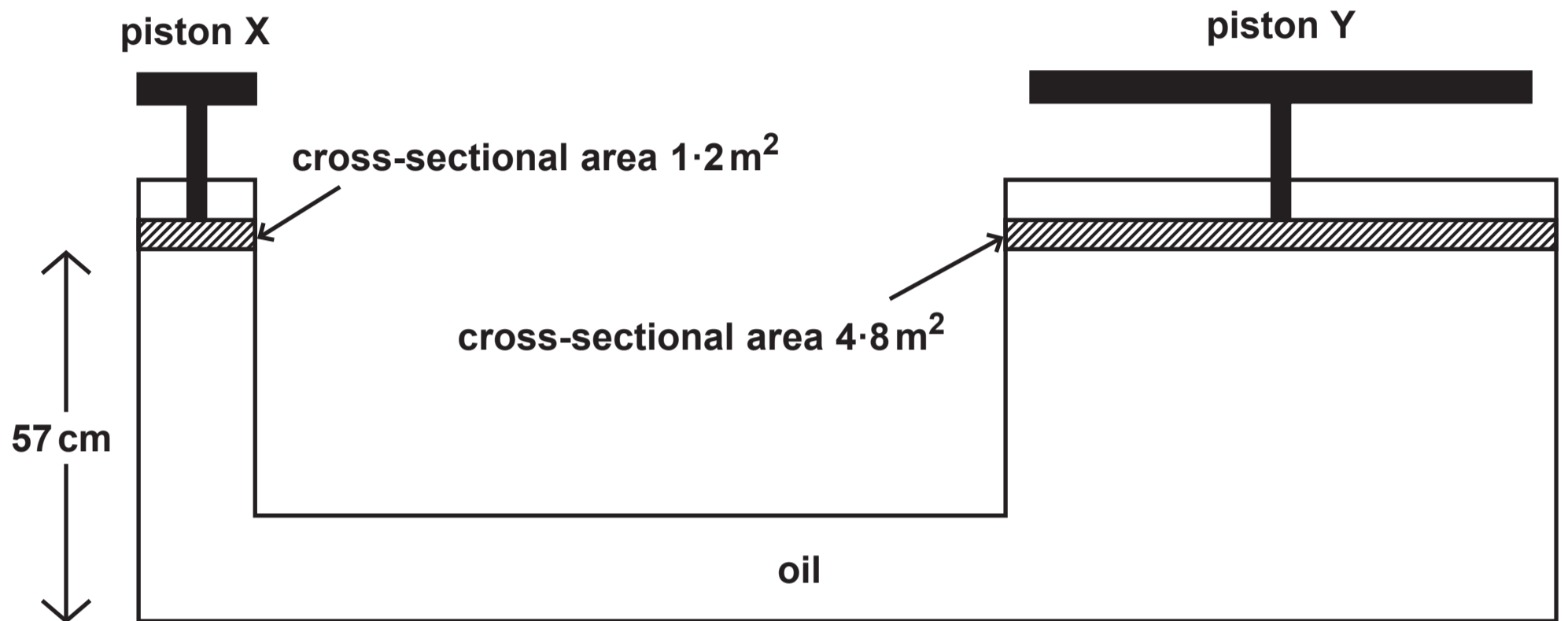
Question 11

DIAGRAM 1

not to scale

ray of
light

X

Y

Z
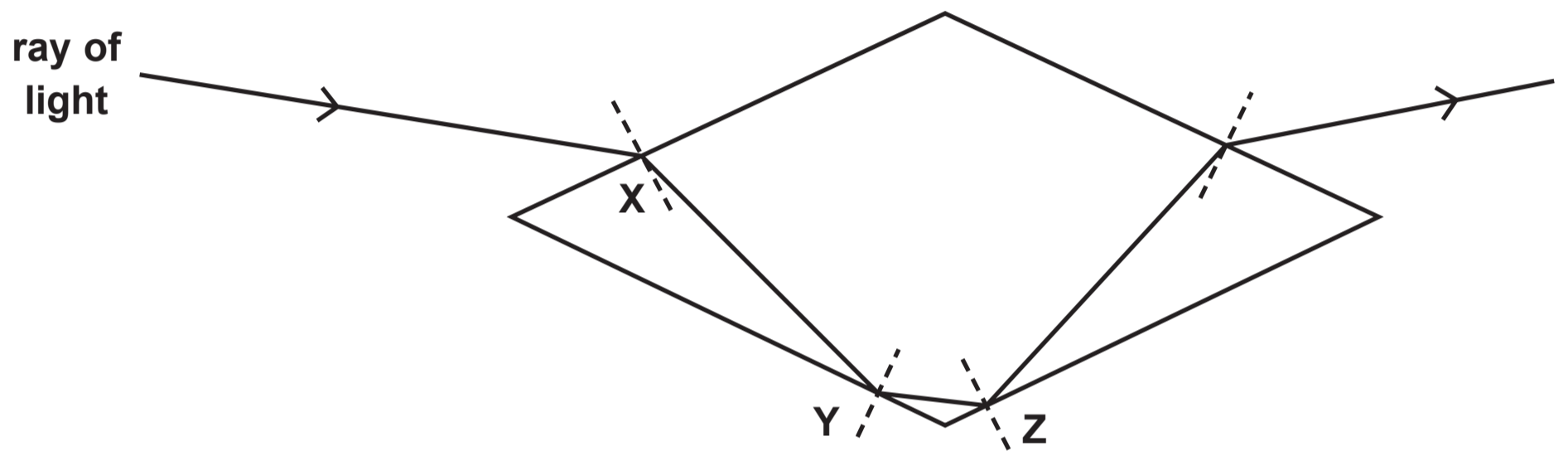
Question 11(a)(i)

DIAGRAM 2
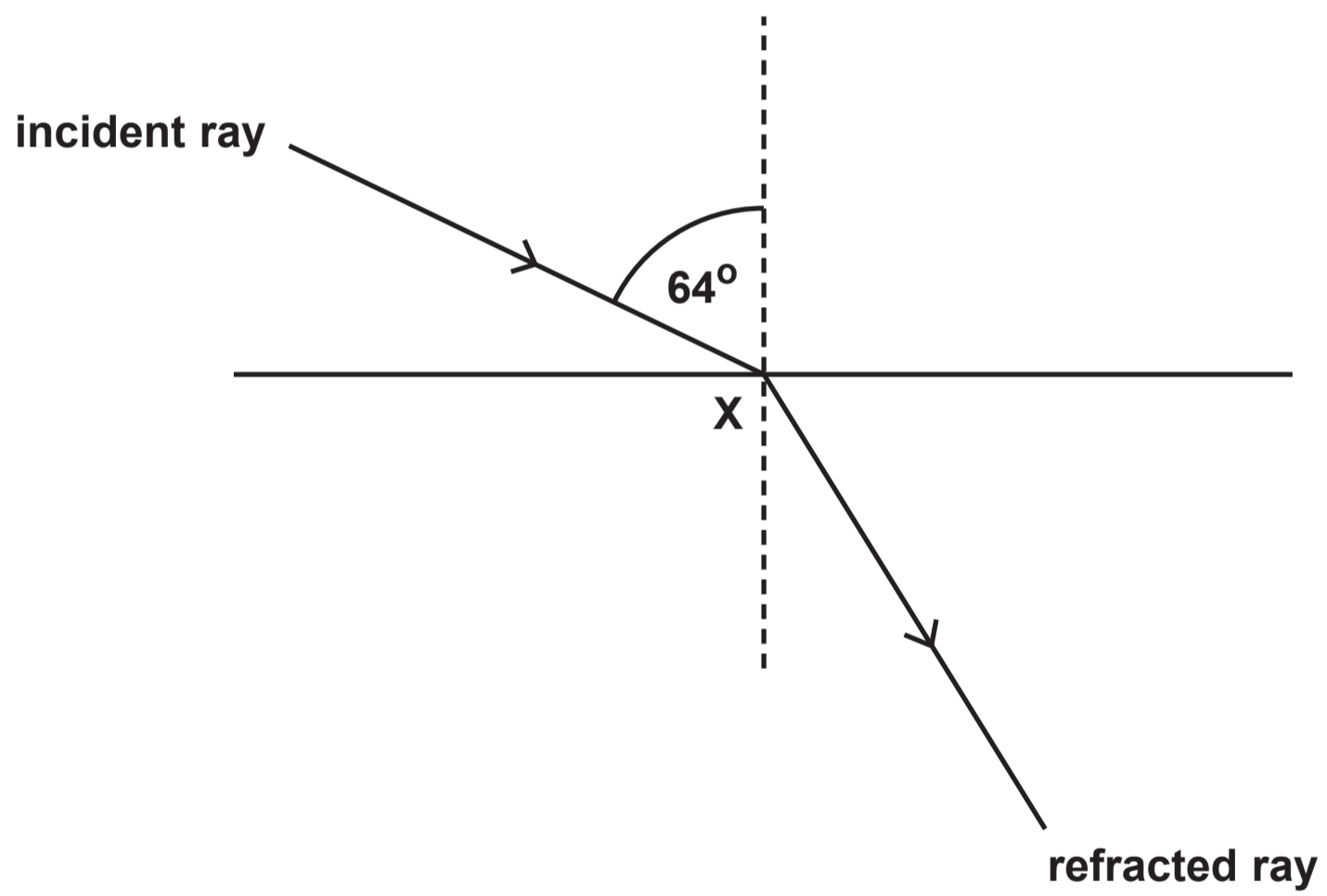
Question 11(a)(i) (Spare copy)

DIAGRAM 2

incident ray

64°

X

refracted ray
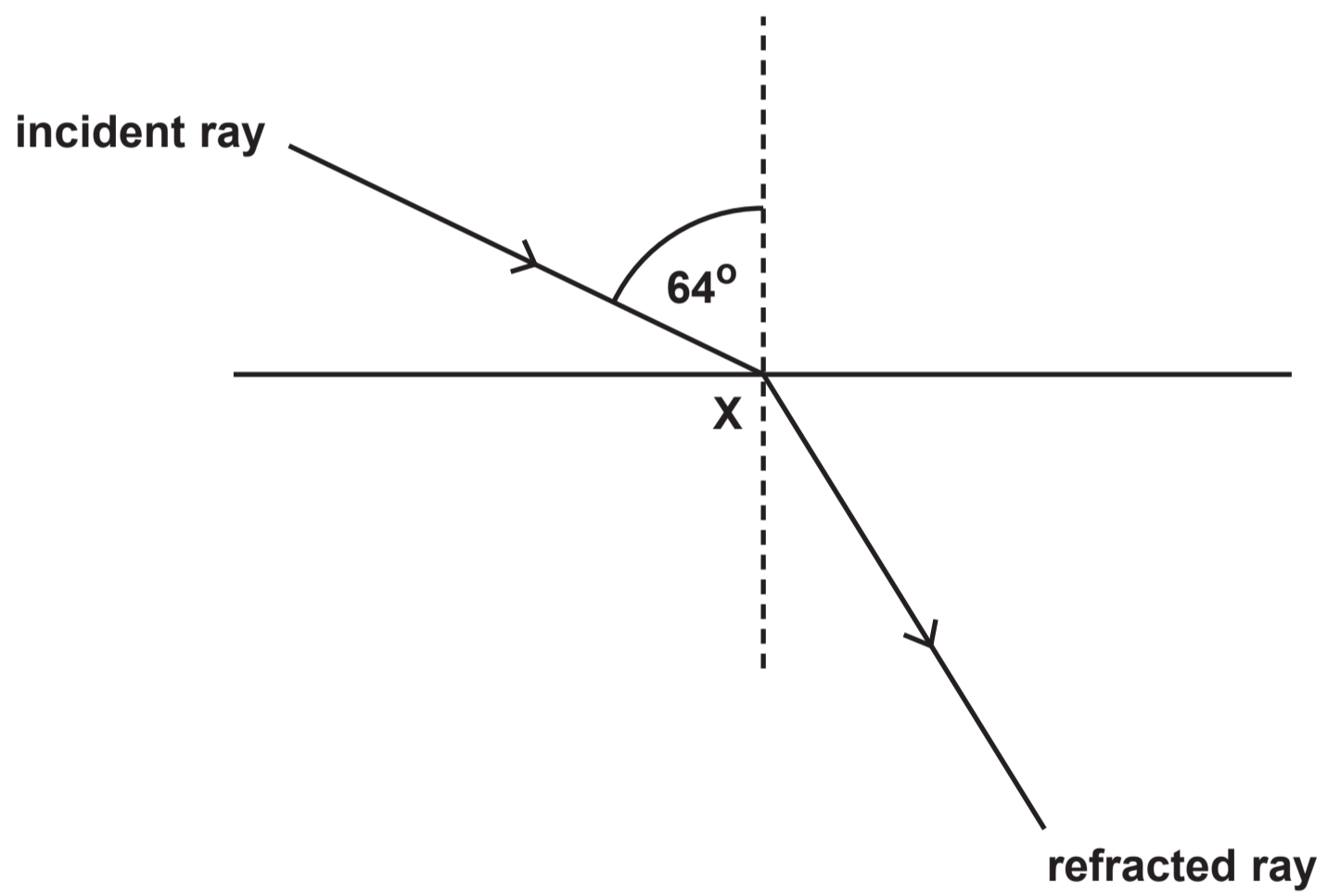
Question 11(b)

not to scale

ray of
light
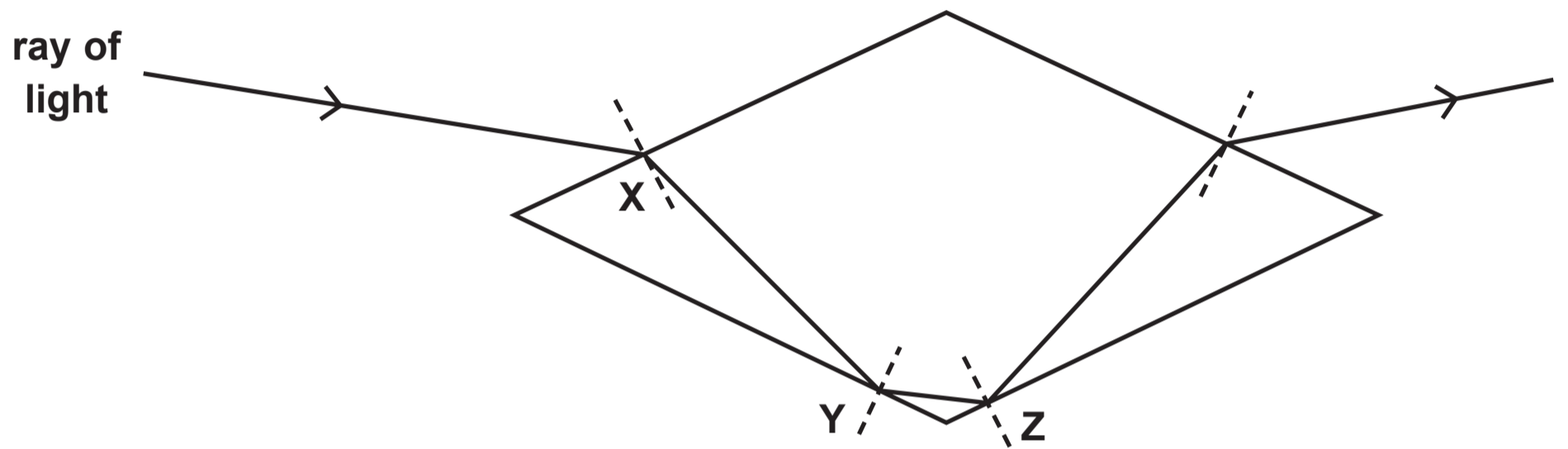
Question 9(a)
(Source: © Alexander Baumann/Shutterstock)

Question 9(b)
(Source: © Eugenia Petrovskaya/Shutterstock)