Cambridge Assessment International Education

Cambridge IGCSE™

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1944007077

CAMBRIDGE INTERNATIONAL MATHEMATICS **0607/32**

Paper 3 (Core) **February/March 2022**

1 hour 45 minutes

You must answer on the question paper.

You will need: Geometrical instruments

INSTRUCTIONS

- Answer **all** questions.
- Use a black or dark blue pen. You may use an HB pencil for any diagrams or graphs.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
- Do **not** use an erasable pen or correction fluid.
- Do **not** write on any bar codes.
- You should use a graphic display calculator where appropriate.
- You may use tracing paper.
- You must show all necessary working clearly and you will be given marks for correct methods, including sketches, even if your answer is incorrect.
- Give non-exact numerical answers correct to 3 significant figures, or 1 decimal place for angles in degrees, unless a different level of accuracy is specified in the question.
- For π, use your calculator value.

INFORMATION

- The total mark for this paper is 96.
- The number of marks for each question or part question is shown in brackets [ ].

This document has **20** pages.

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Formula List

Area, A, of triangle, base b, height h.	$A = \frac{1}{2}bh$
Area, A, of circle, radius r.	$A = \pi r^2$
Circumference, C, of circle, radius r.	$C = 2\pi r$
Curved surface area, A, of cylinder of radius r, height h.	$A = 2\pi rh$
Curved surface area, A, of cone of radius r, sloping edge l.	$A = \pi rl$
Curved surface area, A, of sphere of radius r.	$A = 4\pi r^2$
Volume, V, of prism, cross-sectional area A, length l.	$V = Al$
Volume, V, of pyramid, base area A, height h.	$V = \frac{1}{3}Ah$
Volume, V, of cylinder of radius r, height h.	$V = \pi r^2 h$
Volume, V, of cone of radius r, height h.	$V = \frac{1}{3}\pi r^2 h$
Volume, V, of sphere of radius r.	$V = \frac{4}{3}\pi r^3$

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Answer **all** the questions.

1 **(a)** Simon swims 25 metres.

Change 25 metres to centimetres.

..... cm [1]

(b) Aroon swims four lengths of a 50-metre pool.
Here is the time, in seconds, for each length.

44.8 45.3 44.5 44.4

Work out the total time.
Give your answer in minutes and seconds.

..... minutes ..... seconds [2]

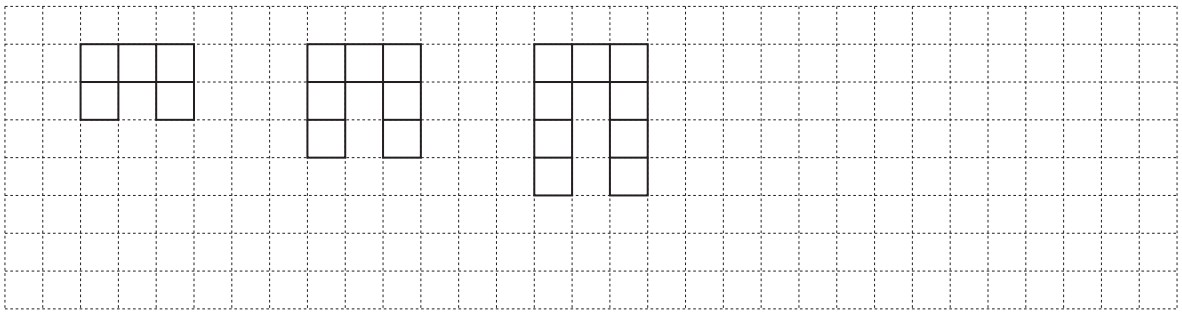
(c) Tam swims 200 metres in a total time of 3.2 minutes.

Calculate her average speed in metres per second.

..... m/s [3]

2 **(a)** These are the first three patterns in a sequence.

Pattern 1 Pattern 2 Pattern 3 Pattern 4 Pattern 5



(i) In the space above, draw Pattern 4 and Pattern 5. [2]

(ii) Complete the table for the number of squares in each pattern.

Pattern number	1	2	3	4	5		8
Number of squares	5						

[3]

(b) These are the first four terms of another sequence.

5 9 13 17

For this sequence,

(i) write down the rule for continuing the sequence,

..... [1]

(ii) find the nth term.

..... [2]

(c) The nth term, T, of a different sequence is given by this formula.

$$T = n^2 - 5$$

(i) Work out the value of T when $n = 4$.

$T =$ ..... [1]

(ii) Rearrange the formula to make n the subject.

$n =$ ..... [2]

3 Students in a college carry out a science experiment.

(a) At the start of the experiment, the temperature of a gas was −42 °C.
During the experiment, the temperature of the gas rises to 28 °C.

(i) Work out how much the temperature of the gas rises during the experiment.

..... °C [1]

(ii) Work out the temperature that is half-way between −42 °C and 28 °C.

..... °C [1]

(b) The experiment began at 07 50 and ended at 15 25.

Work out the length of time the experiment lasted.
Give your answer in hours and minutes.

..... h ..... min [1]

(c) When the results were posted online, there were 1279 views in the first day.

Write 1279 correct to the nearest 10.

..... [1]

(d) By the end of the week, there had been 15 503 views.

(i) Write 15 503 in words.

..... [1]

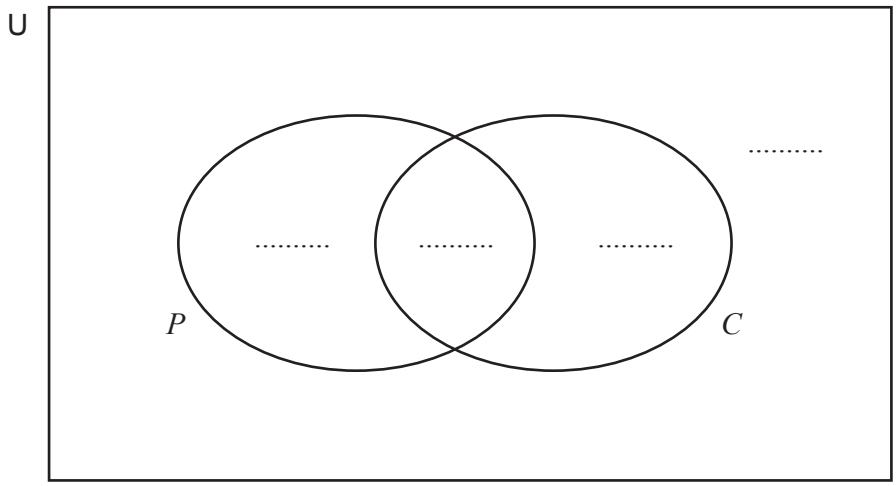
(ii) Write 15 503 in standard form, correct to two significant figures.

..... [2]

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(e) In the college, 53 students study science.
32 study physics (P).
24 study chemistry (C).
18 study both physics and chemistry.

Complete the Venn diagram.



[3]

4 50 students were asked the number of magazines they bought in a week.
The results are shown in the table.

Number of magazines	0	1	2	3	4
Number of students	18	8	14	7	3

(a) Work out how many **more** students bought 2 magazines than bought 1 magazine.

..... [1]

(b) Write down the most common number of magazines bought.

..... [1]

(c) One of the students is chosen at random.

Find the probability that this student bought 3 or 4 magazines.
Give your answer as a fraction in its simplest form.

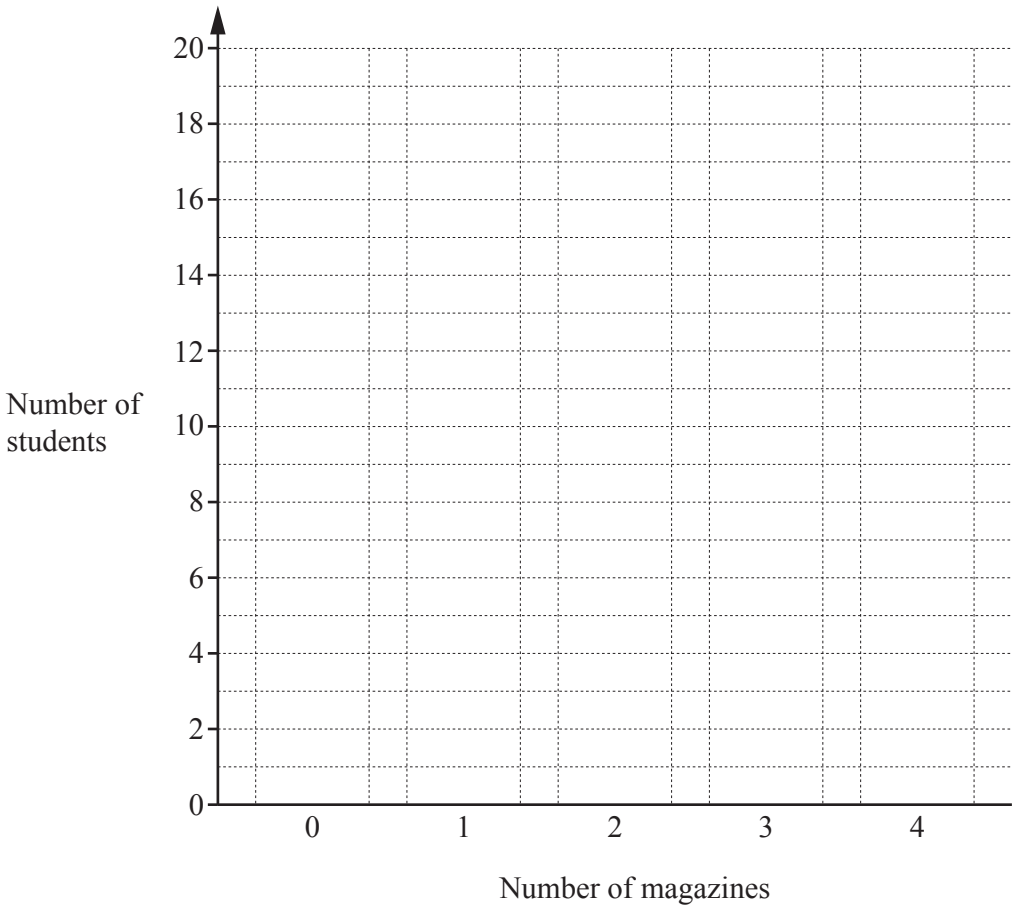
..... [2]

(d) Work out the mean number of magazines bought.

..... [2]

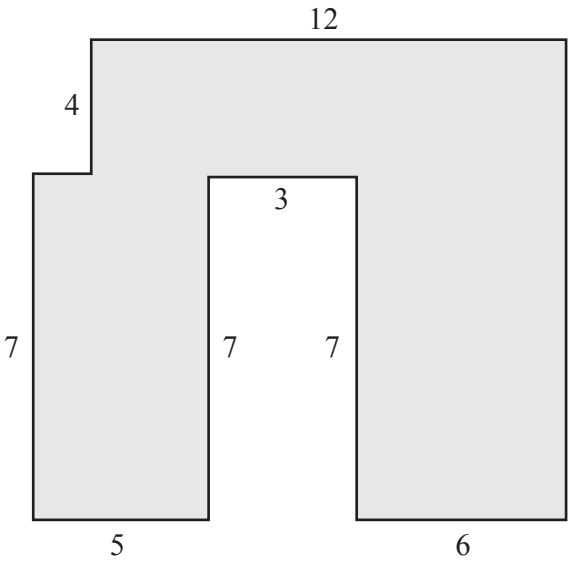
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(e) On the grid, draw a bar chart to show the information in the table.



[2]

5 In the diagram, all lengths are in centimetres and all angles are right angles.



NOT TO SCALE

(a) Work out the area of the shaded shape.
Give the units of your answer.

.... [4]

(b) Work out the perimeter of the shaded shape.

..... cm [3]

6 In a school there are 960 students.
540 of the students are girls.

(a) Write the ratio girls : boys in its simplest form.

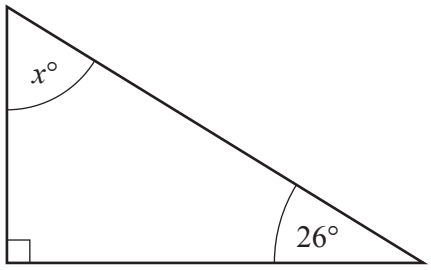
..... : ..... [3]

(b) Two thirds of the 540 girls and 45% of the boys travel to school by bus.

Work out how many **more** girls than boys travel to school by bus.

..... [3]

7 (a)

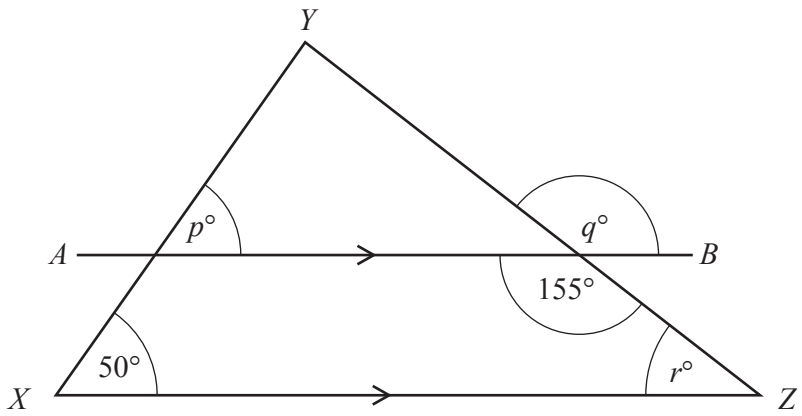


NOT TO SCALE

Find the value of x.

$x =$ ..... [1]

(b)



NOT TO SCALE

The diagram shows a triangle XYZ and a straight line AB.
AB is parallel to XZ.

Find the value of p, the value of q and the value of r.

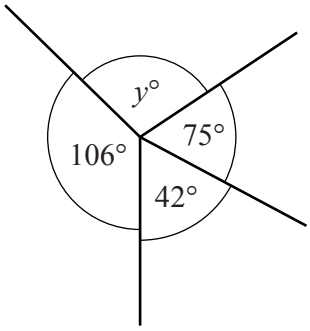
$p =$ .....

$q =$ .....

$r =$ ..... [3]

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(c)

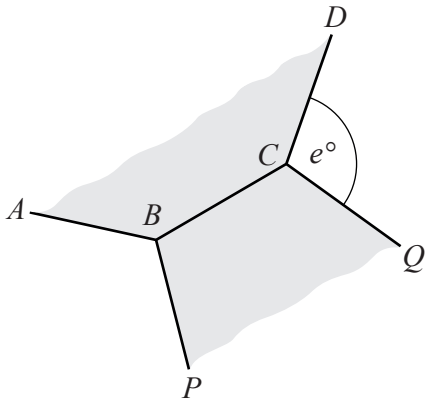


NOT TO SCALE

Find the value of y.

$y =$ ..... [1]

(d)



NOT TO SCALE

$ABCD$ is part of a regular octagon.
$PBCQ$ is part of a regular hexagon.

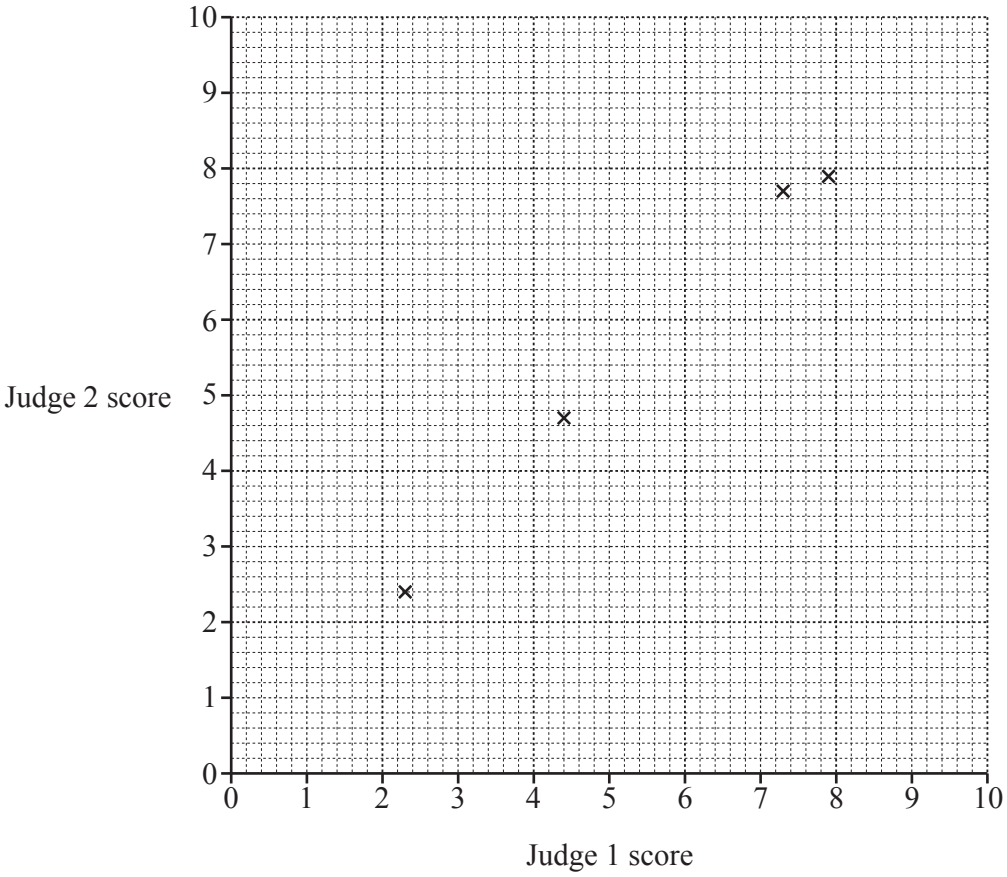
Find the value of e.

$e =$ ..... [4]

8 In a competition, each diver is given a score out of 10 by each of two judges.
The table shows the scores for eight divers.

Judge 1	2.3	7.3	7.9	4.4	8.5	7.7	1.8	8.1
Judge 2	2.4	7.7	7.9	4.7	8.8	7.9	2.4	7.8

(a) Complete the scatter diagram.
The first four points have been plotted for you.



[2]

(b) What type of correlation is shown in the scatter diagram?

..... [1]

(c) Calculate the mean of the scores given by each judge.

Judge 1 .....

Judge 2 ..... [2]

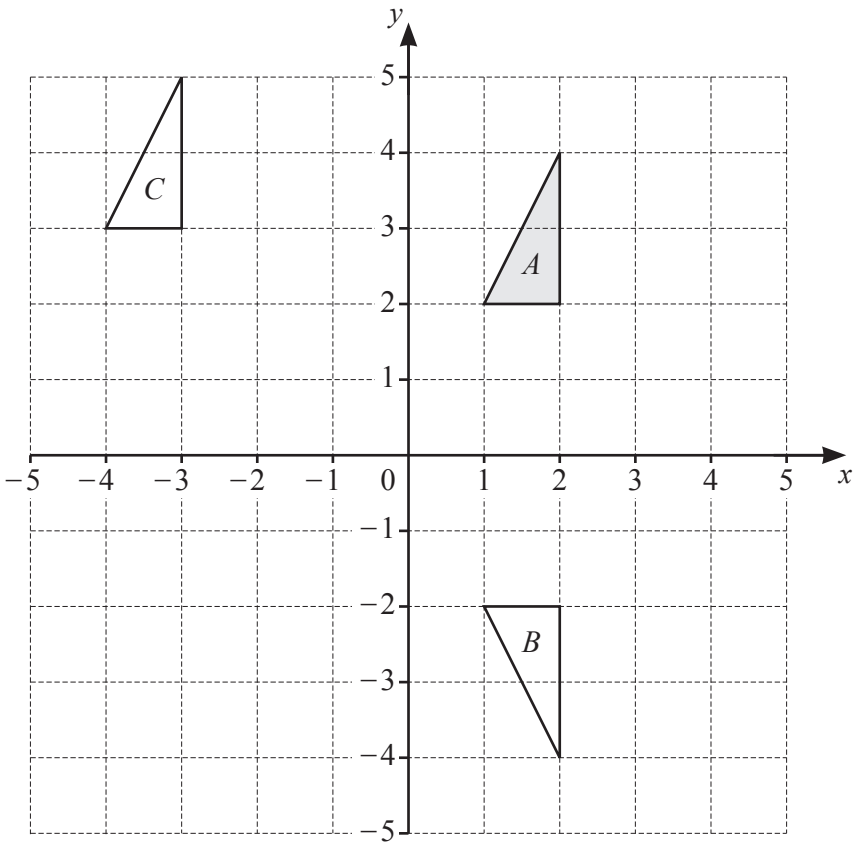
(d) On the scatter diagram, draw a line of best fit. [2]

(e) Judge 1 gives another diver a score of 5.6 .

Use your line of best fit to estimate the score given to this diver by Judge 2.

..... [1]

9



The diagram shows three triangles A, B and C.

(a) Describe fully the **single** transformation that maps triangle A onto triangle B.

.....

..... [2]

(b) Describe fully the **single** transformation that maps triangle A onto triangle C.

.....

..... [2]

(c) Rotate triangle A through 180° about (0, 0).
Label the image P. [2]

(d) Enlarge triangle A, scale factor 2, centre (1, 4).
Label the image Q. [2]

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10 **(a)** Solve.

(i) $x+7=11$

$x =$ ..... [1]

(ii) $4(3x-2)=10$

$x =$ ..... [3]

(iii) $\frac{x}{5}+1=9$

$x =$ ..... [2]

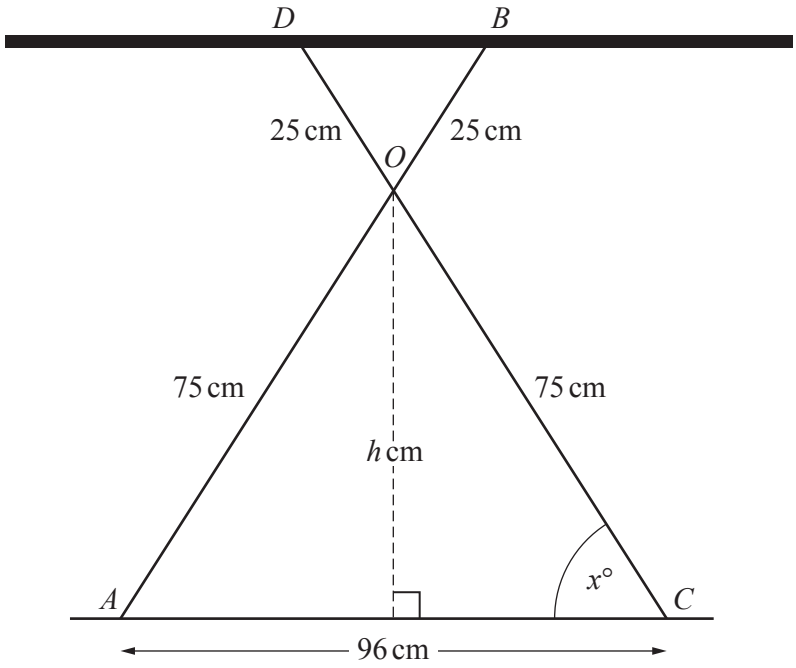
(b) Multiply out the brackets and simplify.

$(x+6)(x-8)$

..... [2]

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NOT TO SCALE

The diagram shows a table standing on a horizontal floor.
The table top is horizontal and is supported by two legs *AOB* and *COD*.

(a) Use trigonometry to find the value of x.

$x =$ ..... [3]

(b) Use similar triangles to find DB.

$DB =$ ..... cm [2]

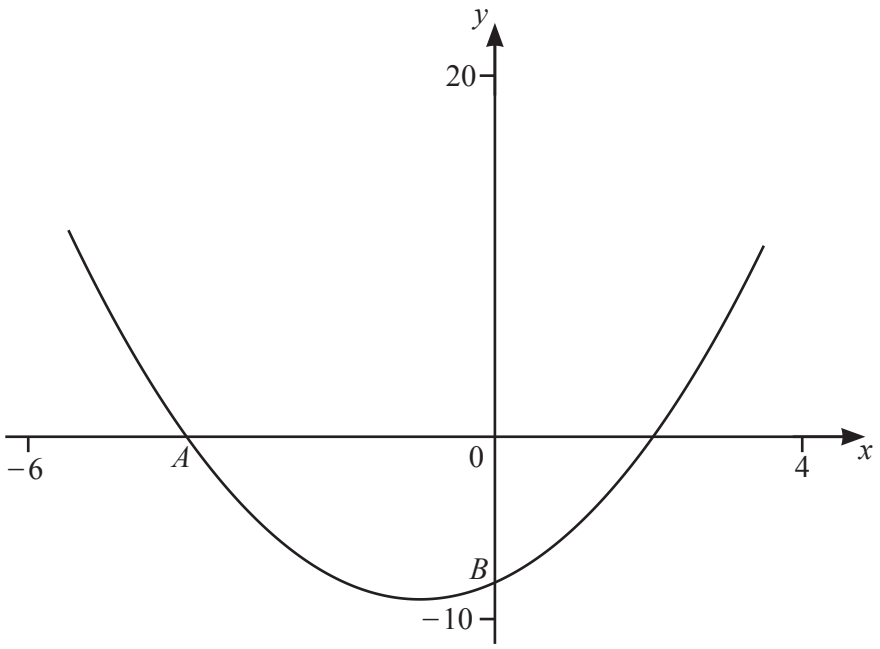
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(c) Use Pythagoras' Theorem to find the height, h cm, of O above the floor.

..... cm [3]

Question 12 is printed on the next page.

12



The diagram shows the graph of $y = (x+4)(x-2)$ for $-6 \leqslant x \leqslant 4$.
A and B are two of the points where the graph crosses the axes.

(a) Find the coordinates of

(i) point A,

(..... , ...) [1]

(ii) point B,

(..... , ...) [1]

(iii) the local minimum.

(..... , ...) [1]

(b) On the diagram, sketch the graph of $y = 1-x$ for $-6 \leqslant x \leqslant 4$. [2]

(c) Find the x-coordinate of each point of intersection of $y = (x+4)(x-2)$ and $y = 1-x$.

$x =$ ..... and ..... [2]

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