



Cambridge International AS & A Level

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THINKING SKILLS

9694/11

Paper 1 Problem Solving

May/June 2026

1 hour 30 minutes

You must answer on the question paper.

No additional materials are needed.

INSTRUCTIONS

- Answer **all** questions.
- Use a black or dark blue pen.
- 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. Do **not** use correction fluid or tape.
- Do **not** write on any bar codes.
- You may use a calculator.
- Show your working.

Where a final answer is incorrect or missing, you may still be awarded marks for correct steps towards a solution.

In some questions, if you do not show your working, full marks will not be awarded.

INFORMATION

- The total mark for this paper is 50.
- The number of marks for each question or part question is shown in brackets [].

This document has **16** pages.



- 1 Sandra needs to buy a new washing machine and a tumble dryer. She can choose from the following appliances.

appliance type	brand	load capacity	energy efficiency	smart phone compatible	price
washing machine	Argon	9 kg	A	no	\$349
washing machine	Boxer	8 kg	C	yes	\$289
washing machine	Phelps	10 kg	B	yes	\$409
tumble dryer	Argon	9 kg	B	yes	\$379
tumble dryer	Phelps	8 kg	A	yes	\$299
tumble dryer	Boxer	9 kg	A	yes	\$359

Sandra wants all her appliances to have an energy efficiency rating of A or B.
 She wants a load capacity of 9 kg or more.
 She wants to be able to set programs on the appliances using her smartphone.

What is the cheapest total cost for the two appliances that would fit Sandra's requirements? [2]

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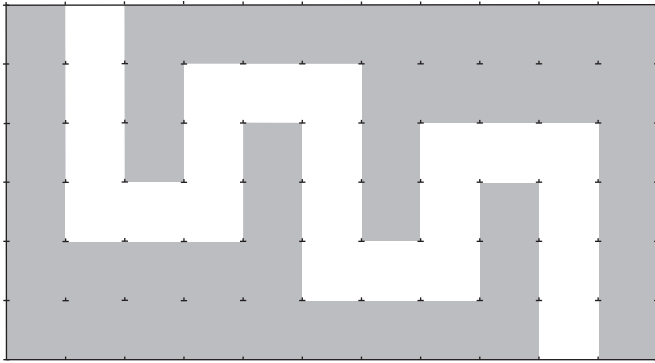
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- 2 A garden is to be built on a 2-metre grid measuring 22 metres by 12 metres. The design has a path surrounded by grass. The path will be 2 metres wide and the remaining area will be grass.



- (a) What fraction of the garden will be a path?

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The grass is sold in rectangles measuring 1 metre by 0.8 metres.

- (b) How many rectangles of grass will need to be purchased to construct the garden?

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- 3 Julie is organising a party for the village she lives in to celebrate its centenary.

She decides to hold some team games. When she counts the guests, she realises that if she puts them into teams of five, she will have one person left over, and if she puts them into teams of six, she will have two people left over.

- (a) What is the smallest possible number of guests at the party? [1]

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- (b) If there are more than 80 guests, what is the smallest possible number of guests at the party? [1]

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- 4 Later this year Trixie will compete in her first triathlon, an event that consists of swimming, cycling and running.

To train for the event she will practise one of the three elements every day, except Sunday, when she will work out at the gym, and Monday, which will be her rest day each week. She will swim, then cycle, then run, in rotation, starting with a 500 m swim on Tuesday 1 July.

JULY						
Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

- (a) On what date will Trixie run for the last time in July? [1]

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Every time Trixie swims during July, she will swim 100 m further than last time.

- (b) What is the total distance that Trixie will swim during July? [2]

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- 5 There are three different bus services that call at the bus stop outside my home.

The services at this bus stop are as follows:

B-line:	departures every 15 minutes from 07:08 until 22:38
H-line:	departures every 25 minutes from 07:30 until 22:05
V-line:	departures every 40 minutes from 07:03 until 22:23

The buses always depart on time.

- (a) What is the total number of departures from this bus stop before 11:00 every morning? [3]

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- (b) (i) Explain how you can tell from the given information that an H-line bus never departs at the same time as any other bus. [1]

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- (ii) When is the first time each day that two buses depart at the same time as each other? [1]

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- 6 Kathi stayed in a hotel while on holiday. One evening she went from her room to the restaurant on the top floor, the 25th floor, using the lift.

When the lift stops at a floor, it remains still for 10 seconds to let people in and out. It takes 3 seconds to move from one floor to the next.

Kathi was in the lift for 50 seconds.

What floor was Kathi's room on?

[2]

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- 7 Maisie and Dan have nine grandchildren and on Saturday they will all visit an adventure park. On Saturday the ages of the grandchildren will be 10, 9, 8, 7, 6, 5, 4, 3 and 2 years. The entry charges are shown in the following table.

age	entry charge
16 years and over	\$30
11 years to 15 years	\$20
8 years to 10 years	\$16
4 years to 7 years	\$11
3 years and under	\$6

- (a) What will be the total entry charge for Maisie and Dan and their grandchildren? [1]

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When they arrive at the park on Saturday, they find that there has been a change to the entry charges. A group ticket has been introduced. The group ticket gives entry to the park for any 4 people for \$75.

- (b) What is the lowest total entry charge that Maisie, Dan and their grandchildren could pay? [2]

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Maisie and Dan take their nine grandchildren to the same park exactly one year later. Friends have told them that the charges have changed again. Group tickets are no longer available. The charge for each child under 16 years old has increased by \$2. The charge for a person aged 16 years or over has increased by a fixed amount, but the friends cannot remember that amount.

The total entry charge for Maisie, Dan and their grandchildren is \$209.

(c) How much is the increase in the entry charge for a person aged 16 years or over? [2]

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- 8 At an animal park there are a large number of animals to see and also three 'Specials': the Bird Centre, the Fish Pond and the Insect House. Visitors must pay to enter the park and an extra amount to visit any or all of the Specials. The list of charges is given in the table.

entry only	\$20
Bird Centre	\$9
Fish Pond	\$7
Insect House	\$11
entry + 1 Special	\$30
entry + 2 Specials	\$38

Two friends, Arlo and Barry, are visiting the park. Arlo will visit all three Specials. Barry will visit the Bird Centre and the Fish Pond, but not the Insect House. They will pay the least amount possible.

- (a) How much will Arlo and Barry each pay? [2]

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There is a café inside the park. The opening hours of the park, the Specials and the café are as follows.

venue	opening hours
park	10:00–17:00
Bird Centre	11:00–13:00 and 14:00–15:00
Fish Pond	10:30–12:30 and 14:00–15:30
Insect House	11:30–15:30
café	12:00–14:00

- (b) For how many minutes each day are at least two of the Specials open? [2]

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Visitors must allow at least 15 minutes to walk between any two of the entrance, the Bird Centre, the Fish Pond, the Insect House and the café.

Indigo enters the park at 11:15. She wishes to visit all three Specials and have lunch in the café. She will spend 45 minutes in each of the Specials and 60 minutes having lunch.

Indigo realises that, in order to fit in all that she wishes, she needs to plan carefully.

- (c) List the order in which Indigo needs to visit the Specials and the café, and state the time at which she must arrive at each of the four locations. [2]

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- 9 Three contestants take part in each episode of the TV quiz show 'Fair Shares'.

In the first round of the show, they work together as a team and are asked 30 questions, putting money into the 'prize pool' for each correct answer. The first 10 questions are worth \$300 each, the next 10 questions are worth \$500 each and the last 10 questions are worth \$800 each.

- (a) What is the greatest amount the prize pool can contain at the end of the first round? [1]

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Arthur, Bridget and Chandra are today's contestants. After the first 10 questions they had put \$2700 into the prize pool. At the end of the first round the prize pool contained \$12 600.

- (b) How many of the 30 questions were answered correctly in today's first round? [2]

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In the second round of the show, the contestants compete separately and are asked 10 questions each. The prize pool is then shared between them in the ratio of the number of questions each one has answered correctly in this round.

Arthur went first and answered 9 of his questions correctly. Bridget has just finished, with 6 correct answers. It is now Chandra's turn.

- (c) What is the smallest amount that Arthur must win today and what is the largest amount that he could win? [2]

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- 10 All the children currently attending a village school are from a total of 41 local families.

The table below summarises the numbers of boys and girls at the school from each of the 41 families.

	0 boys	1 boy	2 boys	3 boys
0 girls	–	7	6	3
1 girl	6	5	4	–
2 girls	5	3	–	–
3 girls	2	–	–	–

- (a) How many boys and how many girls currently attend the school? [2]

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- (b) How many girls at the school have at least one sister also at the school? [2]

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- 11 A basic computer language was able to store only 256 pieces of numerical information, numbered from 0 to 255.

Its arithmetic did not produce any errors.

The result was always a number from 0 to 255.

For example: $250 + 7 = 1$; $3 - 7 = 252$; $13 \times 20 = 4$; 390 is reduced to 134.

Division ignored any remainder, so $42/8 = 5$, and division by 0 was taken to be division by 256, which always resulted in 0.

- (a) (i) Find the value of $(83/4) + (42/4)$ in this computer language. [1]

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- (ii) Find the value of $(83 + 42)/4$ in this computer language. [1]

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- (iii) Find the value of $414/(20 \times 15)$ in this computer language. [2]

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The results from a 1980 bicycle race were entered into a list according to the competitor's number. These ranged from 1 to 388, which caused chaos when it was found that the time for the winning competitor, number 296, appeared as the time for competitor 40.

- (b) What was the lowest numbered competitor for which there was no clash? [1]

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By 2000, spreadsheets with (unsigned) integers could handle $256 \times 256 = 65\,536$ pieces of numerical information.

- (c) The 2020 census for Carthage (population 80 000) was abandoned when it was noticed that entry of Dido's details as resident number 74 123 over-wrote those of one other resident.

What was the number of the other resident? [1]

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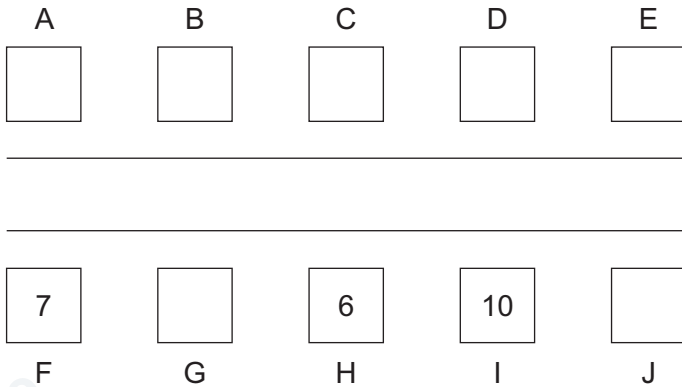
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12 This is Degty Road, which contains ten houses, as shown.



The houses are numbered 1–10, but not in the conventional order. After the houses were built, they were numbered in the order they were sold.

The only three houses with their numbers visible to passers-by are house F, which is number 7, house H, which is number 6, and house I, which is number 10.

It is known, however, that the numbers of every pair of adjacent houses, i.e. A and B, B and C etc., differ by at least 4 and the numbers of every pair of opposite houses, i.e. A and F, B and G etc., also differ by at least 4.

(a) Explain why house A must be number 3. [1]

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(b) What are the numbers of all the other houses? [3]

B

C

D

E

G

J

Question 13 is on the back page.





- 13 My journey to work this morning took a total of 27 minutes, including a 5-minute stop to buy my breakfast.

The average speed for my journey before buying breakfast was 6 km/h.

The average speed for my journey after buying breakfast was 9 km/h.

The average speed for my entire journey, including the stop, was 6 km/h.

How far did I travel before I stopped to buy my breakfast?

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