11+

Practice Test

Set A: Paper 2

Read the following:

**Do not open this booklet or start the test until you are told to do so.**

1. This test can be taken in either multiple-choice or write-in format.
2. If you are taking it as a multiple-choice test you should mark your answer to each question in pencil on the separate answer sheet. Mark the correct box quickly and neatly using a horizontal line.
3. If you are taking it as a write-in test you should write your answer to each question in pencil on the paper. Write your answer carefully in the space provided or, if there is a range of options, mark the correct box quickly and neatly using a horizontal line.
4. If you make a mistake, rub it out and mark your new answer clearly.
5. There are three sections in this test.
6. The time allowed for each section is given at the start of that section. You will have a total of 45 minutes to complete the timed sections of the test.
7. Each section includes examples showing you how to answer the questions. You may refer to these examples at any time as you work through the section.
8. Do as many questions as you can. For some questions you will be given a range of options — if you get stuck on one of these questions, choose the answer that you think is most likely to be correct, then move on to the next question. If you get stuck on a question for which no options are given, leave it and move on to the next question. If you have time at the end of the section, go back and have another go at the questions you could not answer.
9. You should do any rough working on a separate piece of paper.

Work carefully, but go as quickly as you can.

SECTION 3: NUMERICAL REASONING

READ THESE EXAMPLE QUESTIONS. YOU MAY RETURN TO THESE EXAMPLES AT ANY TIME AS YOU WORK THROUGH THIS SECTION.

A George draws a graph showing a flight by his remote-control model plane.
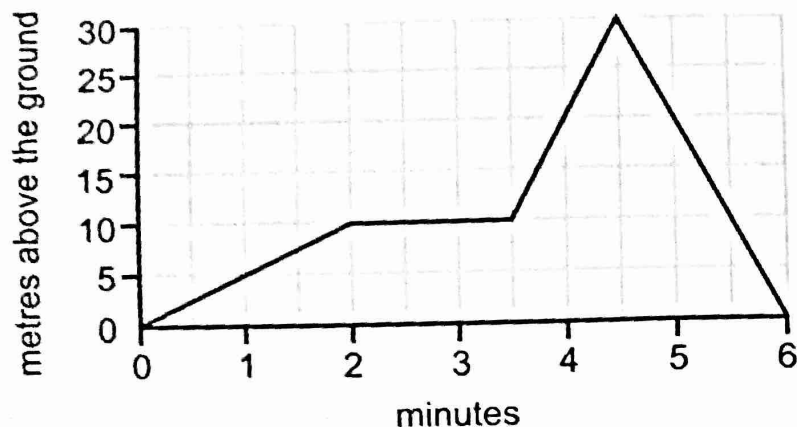
A1 How long did the flight last?

⁶ minutes

A2 How high was the plane after 4 minutes of flight?

2 0 m

A3 According to the graph, what was the plane doing between 3½ and 4½ minutes of flight?

speeding up	rising	slowing down	falling
☐	▬	☐	☐

⚠ **WAIT UNTIL YOU ARE TOLD TO GO ON** ⚠

THERE ARE **10 MULTI-PART** QUESTIONS IN THIS SECTION

The tables show the results of 5 pupils who competed in several events at sports day.

①

Javelin	
Pupil	**Distance thrown (m)**
Jane	24.35
Olé	24.36
Rich	24.40
Sophie	24.39
Leslie	24.41

Triple Jump	
Pupil	**Distance jumped (m)**
Jane	8.29
Olé	13.26
Rich	10.97
Sophie	10.4
Leslie	11.39

400 m Hurdles					
Pupil	Jane	Olé	Rich	Sophie	Leslie
Time (s)	79.36	74.24	78.86	72.35	69.72

a) Which pupil threw the javelin the furthest?

Jane ☐   Olé ☐   Rich ☐   Sophie ☐   Leslie ☐

b) How much further was Leslie's triple jump than Rich's?

☐☐·☐☐ m

c) In the 400 m hurdles, what was the difference between Jane and Sophie's times?

☐·☐☐ seconds

d) The Field Events Prize is given to the person whose combined distance for the javelin and triple jump is the greatest.

Out of these five pupils, who won the Field Events Prize?

Jane ☐   Olé ☐   Rich ☐   Sophie ☐   Leslie ☐

GO TO THE NEXT QUESTION ⇨

(2) The pictogram below shows Viktoria's household recycling in March.

Type of waste	Mass Recycled
Plastic	🗑🗑🗑🗑
Glass	🗑🗑🗑🗑🗑
Metal	🗑🗑🗑
Paper	🗑🗑🗑🗑🗑🗑

🗑 = 2 kg

a) How much plastic was recycled in March?

☐☐.☐ kg

b) How much more glass than metal was recycled?

☐☐.☐ kg

c) Which type of waste made up exactly $^1/_3$ of the mass recycled in March?

Plastic ☐   Glass ☐   Metal ☐   Paper ☐

In April, Viktoria's household recycled 3 kg more metal than in March. The other three types of waste remained the same.

d) What was the most common type of waste recycled in April?

Plastic ☐   Glass ☐   Metal ☐   Paper ☐

e) If a pictogram were to be drawn for April with the same key, how many pictures would be needed to represent metal?

$4^1/_2$ ☐   6 ☐ $5^1/_2$ ☐ $7^1/_4$ ☐ $3^3/_4$ ☐

③ Aditya and Chloé went for a walk to a nearby village. They stopped at the village to have lunch, and then walked a different route home.
The graph below shows their journey.
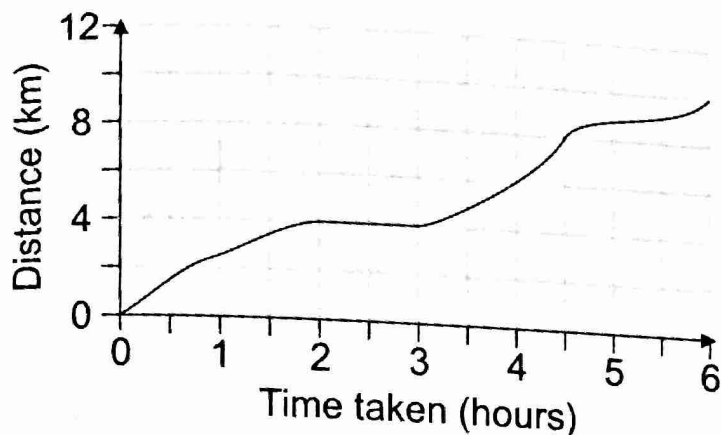
a) How long did they stop for lunch?

☐ hour(s)

b) How much further did they walk on the way home from the village than on the way there?

☐☐ km

Aditya and Chloé set off from home at the time shown on the 24-hour digital clock below.

10:35

c) At what time did they arrive back home? Write your answer in 24-hour format.

☐☐ : ☐☐

d) Which of the 24-hour clocks below shows the time when they had walked 8 km?

14:38	15:05	15:35	17:02	13:08
☐	☐	☐	☐	☐

GO TO THE NEXT QUESTION ⮕

4 Julio records the sales at his cheese shop in one week by mass.
He sells 45 kg of Stinky Blue, which makes up $^3/_{20}$ of his overall sales.

a) What was the overall mass of Julio's sales in this week?

☐☐☐☐ kg

Julio's sales for this week are shown in the pie chart.

Belgian Brie
Greg's Leicester
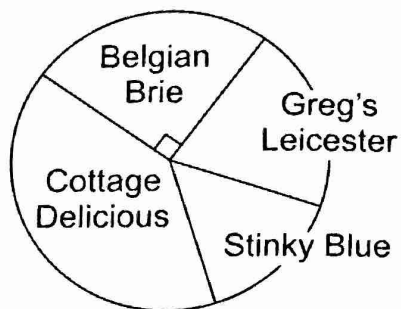Cottage Delicious
Stinky Blue

b) What is the angle size for Stinky Blue?

☐☐☐ °

c) How much Belgian Brie, in kilograms, did Julio sell?

☐☐☐ . ☐☐ kg

d) The cheese advertisement shown was placed in a magazine.

> **Valentina's Cheddar**
> **Recommended by 75% of cheese experts!**
>
> Valentina's Cheddar
> Made in USA
>
> An independent study found that 75 of 110 cheese experts recommended Valentina's Cheddar
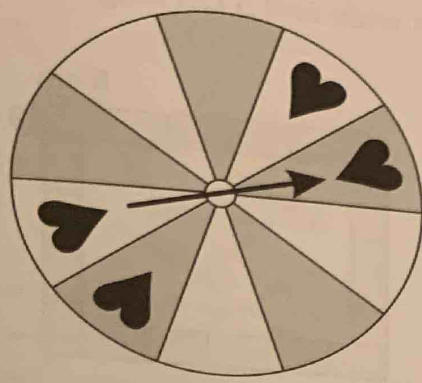
Why is the advertisement misleading?

A The cheese experts weren't qualified.

B The percentage of cheese experts recommending the Cheddar is actually higher than stated.

C The percentage of cheese experts recommending the Cheddar is actually lower than stated.

D The cheese experts were biased.

E Not enough experts were asked.

A ☐   B ☐   C ☐   D ☐   E ☐

(5) Doug's fair spinner is shown.

a) What percentage of the spinner's sections are heart sections?

20% ☐   40% ☐   50% ☐   60% ☐   80% ☐

b) What percentage of the spinner's sections are grey non-heart sections?

10% ☐   15% ☐   20% ☐   25% ☐   30% ☐

Doug adds a number of hearts to the spinner. The fraction of sections that are both white and have a heart is now $2/5$. There is at most one heart per section.

c) What is the smallest number of hearts that Doug could have added to the spinner? ☐

d) What is the greatest number of hearts that Doug could have added to the spinner? ☐

GO TO THE NEXT QUESTION ⇨

11+CEM/A2

6 Bathroom tiles are placed in a rectangle, as shown below, to make a border for a mirror. Each bathroom tile is 3 cm wide and 5 cm long.

5 cm

3 cm

a) What is the total area of the tiles used to make the border?

⬜⬜⬜⬜ cm²

b) What is the perimeter of the inside of the border?

⬜⬜⬜ cm

Tiles the same size as above are also used to make a decorative pattern, as shown below.

c) What is the perimeter of the pattern?

| 40 cm | 24 cm | 36 cm | 48 cm | 32 cm |
| ▭ | ▭ | ▭ | ▭ | ▭ |

d) How many lines of symmetry does the decorative pattern have?

⬜

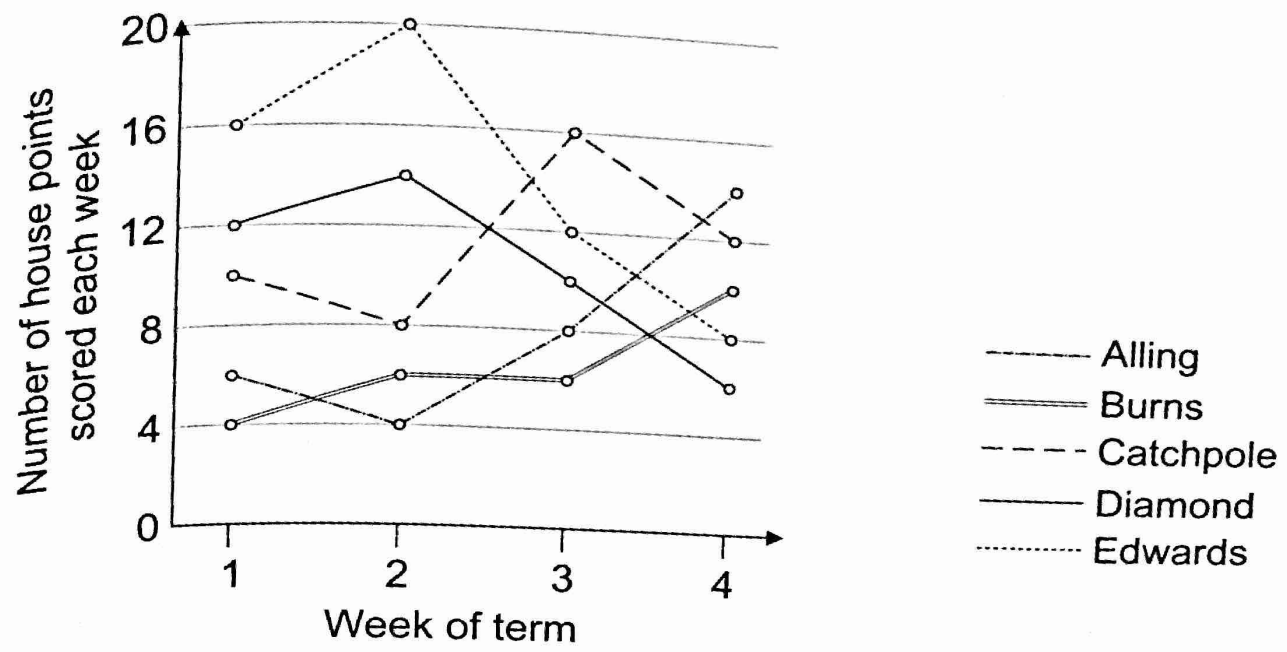e) Which of the following patterns has the same perimeter as the shape above?

A ▭   B ▭   C ▭   D ▭   E ▭

1 This graph shows the number of house points scored each week by each of five school houses over a period of four weeks.

Legend:
- — — — — Alling
- ═══════ Burns
- – – – – Catchpole
- ———— Diamond
- ·········· Edwards

Y-axis: Number of house points scored each week (0, 4, 8, 12, 16, 20)
X-axis: Week of term (1, 2, 3, 4)

a) Which week(s) had the smallest difference between the house with the most points and the house with the least points?

1 ▭   2 ▭   4 ▭   3 and 4 ▭   1 and 4 ▭

b) How many house points did Burns score in Week 3?

▭▭ points

c) What is Alling's mean score?

▭▭ points

d) The Week 1 scores of three of the houses add up to 28. Which three houses?

Alling, Burns and Edwards ▭

Catchpole, Diamond and Edwards ▭

Burns, Catchpole and Diamond ▭

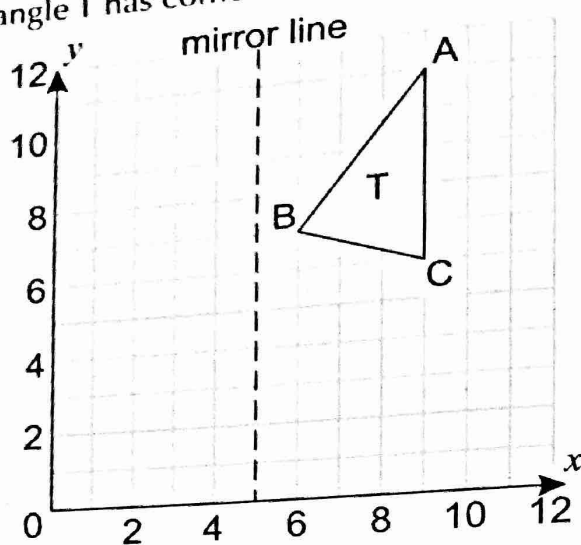Alling, Catchpole and Diamond ▭

Burns, Diamond and Edwards ▭

GO TO THE NEXT QUESTION ⏭

(8) The isosceles triangle T has corners A, B and C.

mirror line

a) T is translated 5 squares to the left and 6 squares down.
This new shape is called triangle U. What are the new coordinates of point B?

(⬜⬜ , ⬜⬜)

b) Triangle U is now reflected in the mirror line.
This new shape is called triangle V. What are the new coordinates of the point C?

(⬜⬜ , ⬜⬜)

c) When triangles U and V are joined together, what shape do they make?
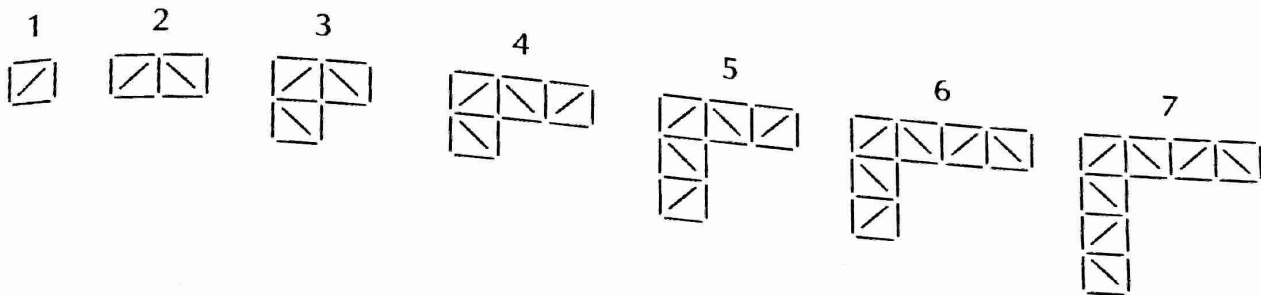
square   kite   hexagon   scalene triangle   rhombus

▭   ▭   ▭   ▭   ▭

d) The size of the angle BAC on triangle T is 38°.
What is the size of the angle ABC on triangle T?

⬜⬜ °

9 The shapes in the sequence below are made up of sticks arranged into squares and diagonals.

1 2 3 4 5 6 7

a) How many sticks will there be in the 10th shape?

b) How many diagonal sticks will there be in the 25th shape?

c) If n is the shape number, which of the following expressions describes the number of sticks in the shape?

$n + 5$ $4n + 5$ $5n + 4$ $4n + 1$ $n + 4$
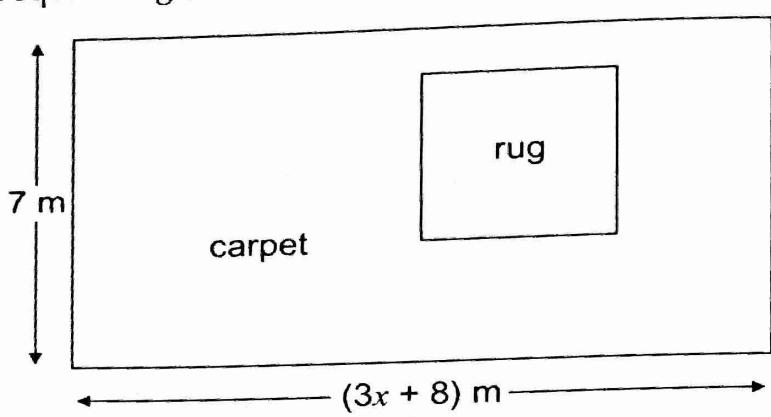
d) Each stick is 5 cm long.
What would be the total length of the sticks in the 100th shape? Give your answer in metres.

⬜⬜⬜.⬜⬜ m

GO TO THE NEXT QUESTION ➡

(10) The diagram shows a room covered in a carpet (shown in white) and with a square rug (shown in grey). The diagram is not to scale.

a) Which of these expressions gives the perimeter of the room in m?

$6x + 30$ ☐ $21x + 15$ ☐ $21x + 24$ ☐ $6x + 14$ ☐ $3x + 15$ ☐

The area of the rug is $\frac{1}{7}$ of the area of the room.

b) What is the ratio of the area of the rug to the area of the carpet not covered by the rug? Give your answer in its simplest form.

☐☐ : ☐☐

c) Which of these expressions gives the area of the rug in m²?

$10x + 8$ ☐ $\frac{1}{7}(x) + 8$ ☐ $\frac{1}{7}(x^2)$ ☐ $\frac{1}{7}(3x + 8)$ ☐ $3x + 8$ ☐

d) The area of the rug is 11 m². What is the value of x?

$x =$ ☐☐