Cambridge Assessment International Education

Mathematics

Stage 7

Paper 2 **2022**

Cambridge Lower Secondary Progression Test

Name

Class

Date

1 hour

Additional materials: Calculator
Geometrical instruments
Tracing paper (optional)

INSTRUCTIONS

- Answer **all** questions.
- Write your answer to each question in the space provided.
- You should show all your working on the question paper.
- You may use a calculator.

INFORMATION

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

1 Jamila picks a card at random from these cards.

Find the probability that she picks a card with an odd number.

..... [1]

2 Find the highest common factor of 36 **and** 63

..... [2]

3 Rajiv is x years old.

(a) Rajiv is twice as old as Safia.

Write an expression for Safia's age in terms of x.

..... [1]

(b) Write an expression for Rajiv's age, in terms of x, in 3 years' time.

..... [1]

4 Complete the sentence using the correct word from the list.

K

reflected rotated similar congruent parallel perpendicular

An enlargement of a shape always produces a ..... shape to the original shape.

[1]

5 Find the value of $a + \frac{b}{5}$ when $a = 11.7$ and $b = 15.5$

K

..... [1]

6 Lily has some chocolate with a mass of 220 g.
She eats 30 g of the chocolate.

K

Find the percentage of the chocolate she has **not** eaten.

..... % [2]

7 4 kg of onions costs $3.40

K

Find the cost of 3 kg of these onions.

$ ..... [1]

8 **(a)** Write 15.17941 correct to two decimal places.

..... [1]

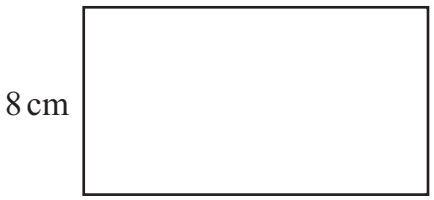
(b) Work out.

$$\frac{52.7 \times 2.6^2}{\sqrt{110}}$$

Give your answer correct to one decimal place.

..... [2]

9 Here is a rectangle.



NOT TO SCALE

(a) Find an expression for the perimeter of the rectangle, in terms of b.
Give your answer in its simplest form.

..... cm [2]

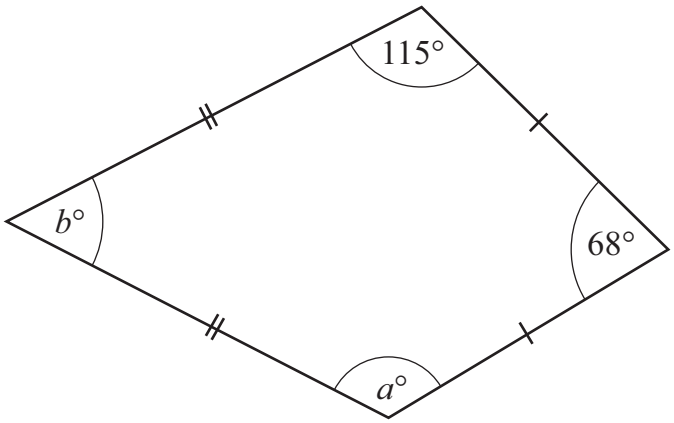
(b) Find the value of b when the perimeter is 42 cm.

$b =$ ..... [2]

10 Complete the statement.

1 square centimetre = ... square millimetres. [1]

11 The diagram shows a kite.



NOT TO SCALE

(a) Find the value of a.

a = ... [1]

(b) Find the value of b.

b = ... [1]

12 Carlos says, '5.2 hours is the same as 5 hours 20 minutes.'

Describe his error **and** give the correct time for 5.2 hours in hours and minutes.

His error is .....

.....

The correct time is ..... hours ..... minutes.

[2]

13 Write a number in each box to make each statement correct.

$\sqrt[3]{\square} = 4$

$121 = \square^{2}$

[1]

14 **(a)** Draw a ring around **each** of the words with rotational symmetry of order 2

pod pop pad dip lol sos

[1]

(b) Write the name of the quadrilateral that has four equal sides **and** two lines of symmetry.

..... [1]

15 The table shows the time it takes, in seconds, for some students to complete a race.

Time (seconds)	Frequency
13	1
14	10
15	5
16	7

(a) Find the mode.

..... seconds [1]

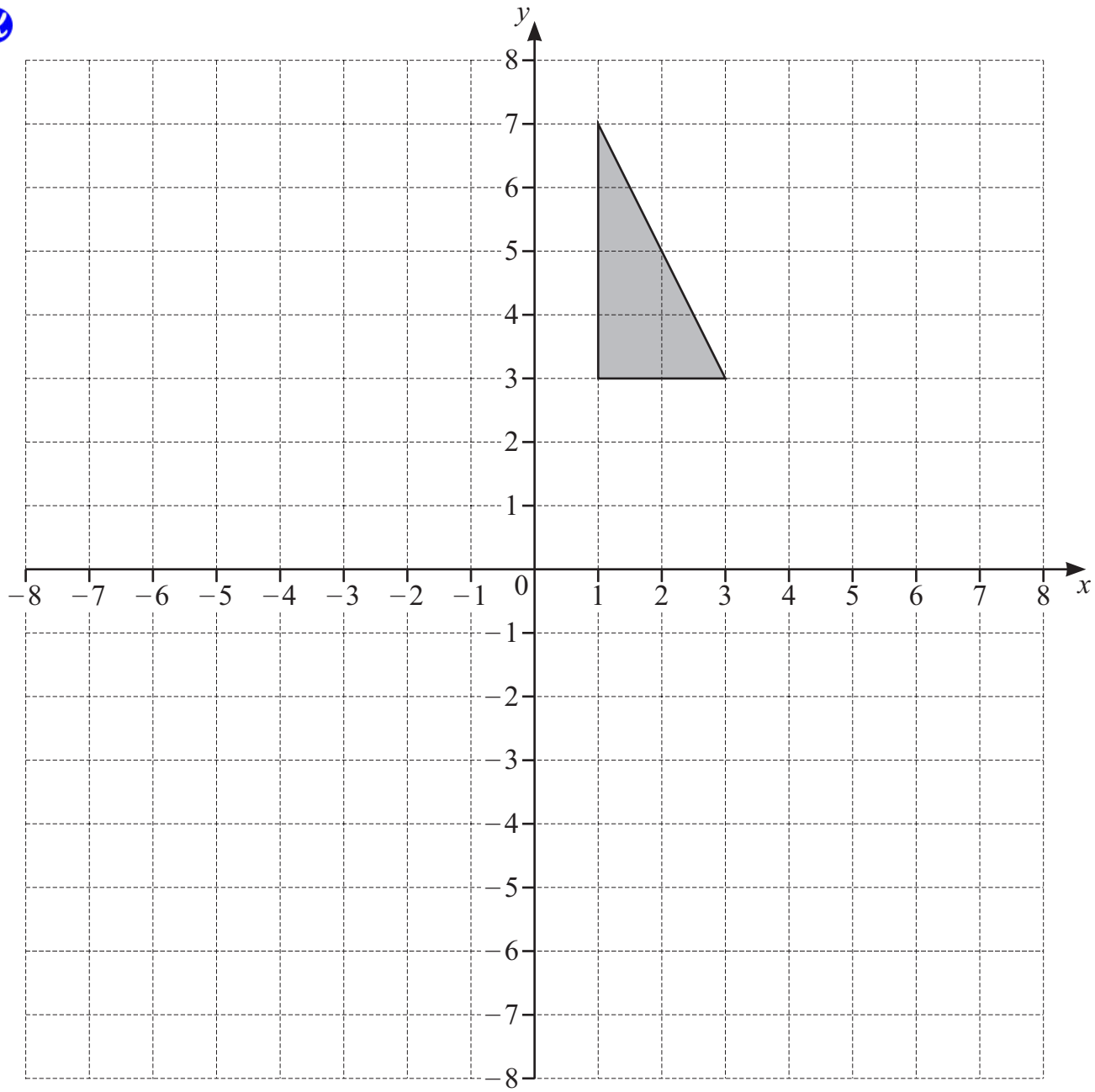
(b) Find the median.

..... seconds [1]

(c) Calculate the mean.

..... seconds [2]

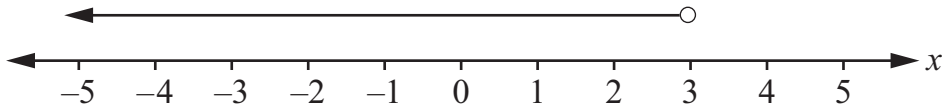
16



(a) Reflect the shaded triangle in the x-axis. [1]

(b) Rotate the shaded triangle by 90° anticlockwise around the point (–1, 2). [2]

17



Write down the inequality represented on the number line.

..... [1]

18 **(a)** $10.132 < x < 10.133$

Write down a possible value for x.

..... [1]

(b) $10\frac{1}{4} < y < 10\frac{3}{8}$

Write down a possible value for y.
Give your answer as a mixed number.

..... [1]

19 In a school, 10 students out of the 220 students in grade 7 were surveyed about their favourite fruit.

Type of fruit	Apple	Orange	Banana	Peach
Frequency	3	1	2	4

(a) Find the relative frequency that the favourite fruit is apple.

..... [1]

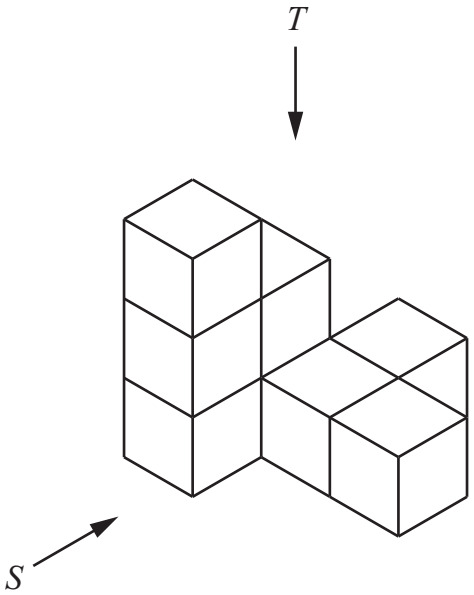
(b) The principal of the school says, 'The survey results would be unreliable to predict the favourite fruit of all the students in grade 7'

Explain why.

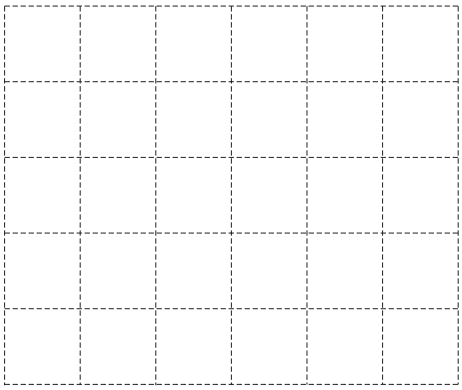
.....

..... [1]

20 This shape is made from 8 one-centimetre cubes.

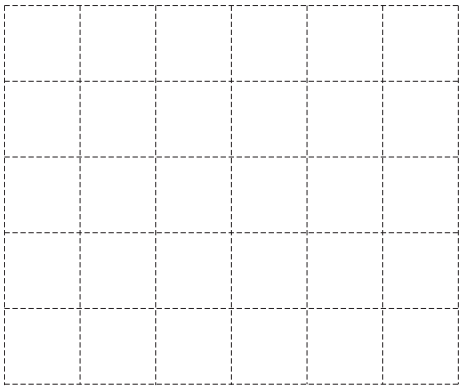


(a) Draw the top view (from T) on the grid.



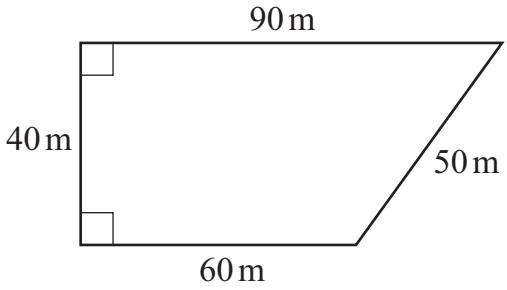
[1]

(b) Draw the side view (from S) on the grid.



[1]

21 The diagram shows a field.



NOT TO SCALE

Seeds are planted to cover the whole field.
The cost of planting seeds is $2.58 for each square metre.

Calculate the cost of planting seeds in the field.

$ ..... [3]

22 Five friends compare test scores.
Here are their percentage scores.

78% 82% 79% 85% 23%

Tick (✓) to show which is the most appropriate average to use to summarise these scores.

Mean	Median	Mode
☐	☐	☐

Explain why each of the other two averages are **not** appropriate.

1 .....

.....

2 .....

.....

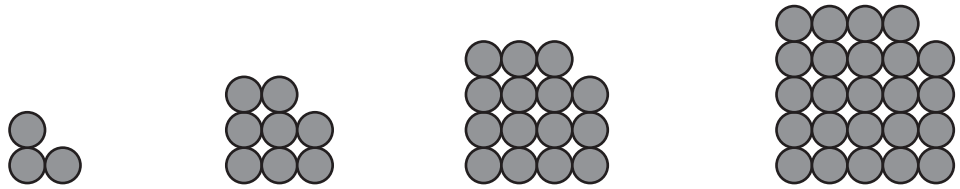
[2]

23 A cuboid has a length of 5 cm, a width of 4 cm and a height of h cm.
The volume of the cuboid is 70 cm^3.

Calculate the surface area of the cuboid.

..... cm^2 [3]

24 Oliver is making a sequence of patterns using counters.



Pattern 1
3 tiles

Pattern 2
8 tiles

Pattern 3
15 tiles

Pattern 4
24 tiles

(a) Oliver says, 'There is a pattern in this sequence that will need 99 counters.'

Tick (✓) to show if he is correct.

Yes ☐ No ☐

Explain how you know.

.....

.....

[1]

(b) Oliver has 200 counters.

Calculate how many counters he has left after making the first 7 patterns of this sequence.

..... [2]