

Name: \_\_\_\_\_

# Maths Genie Stage 6

## Test B

### Instructions

- Use **black** ink or ball-point pen.
- Answer all questions.
- Answer the questions in the spaces provided  
– *there may be more space than you need.*
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- You must **show all your working out.**
- **Calculators may not be used.**



### Information

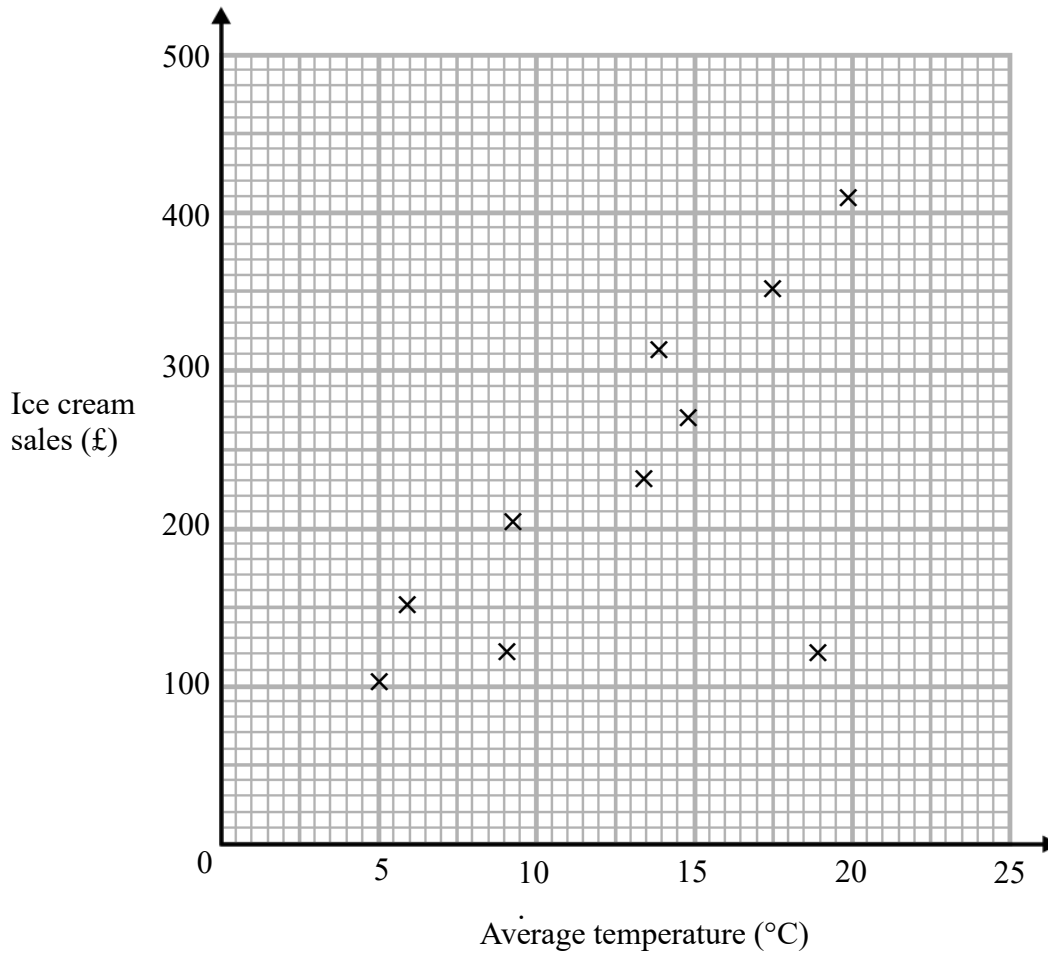
- The marks for each question are shown in brackets  
– *use this as a guide as to how much time to spend on each question.*

### Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end

- 1 The average daytime temperature for 10 days is recorded.  
A shop also records its ice cream sales for each of the 10 days.

The scatter graph shows this information.



- (a) What type of correlation does the scatter graph show?

.....  
(1)

- (b) One of the points is an outlier. Write down the coordinates for this point.

(.....), (.....)  
(1)

- (c) On another day the temperature was 12°. Estimate the ice cream sales on this day.

£.....  
(2)

**(Total for Question 1 is 4 marks)**

2 Two buses, bus A and bus B, both use the same bus stop.

Bus A runs every 12 minutes.

Bus B runs every 14 minutes.

Both buses are at the bus stop at 10 am.

What time will both buses next both be at the bus stop.

.....  
**(Total for Question 2 is 3 marks)**

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3 A number  $y$  is rounded to 2 decimal places.

The result is 7.74

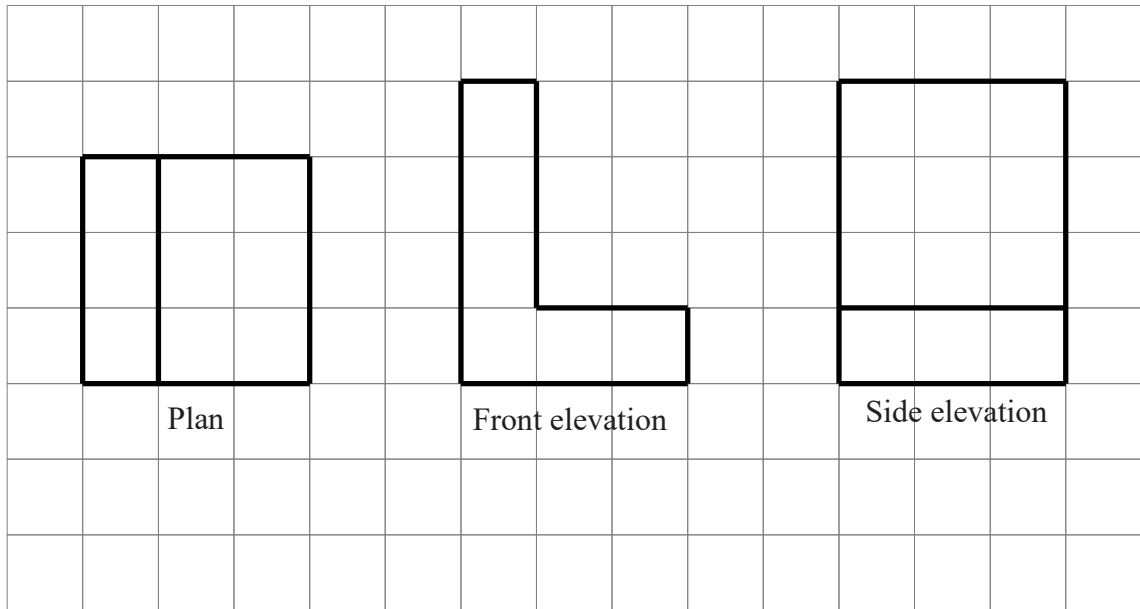
Write down the error interval for  $y$ .

.....  $\leq y <$  .....

**(Total for Question 3 is 2 marks)**

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- 4 The diagram shows the plan, front elevation and side elevation of a solid shape, drawn on a centimetre grid.

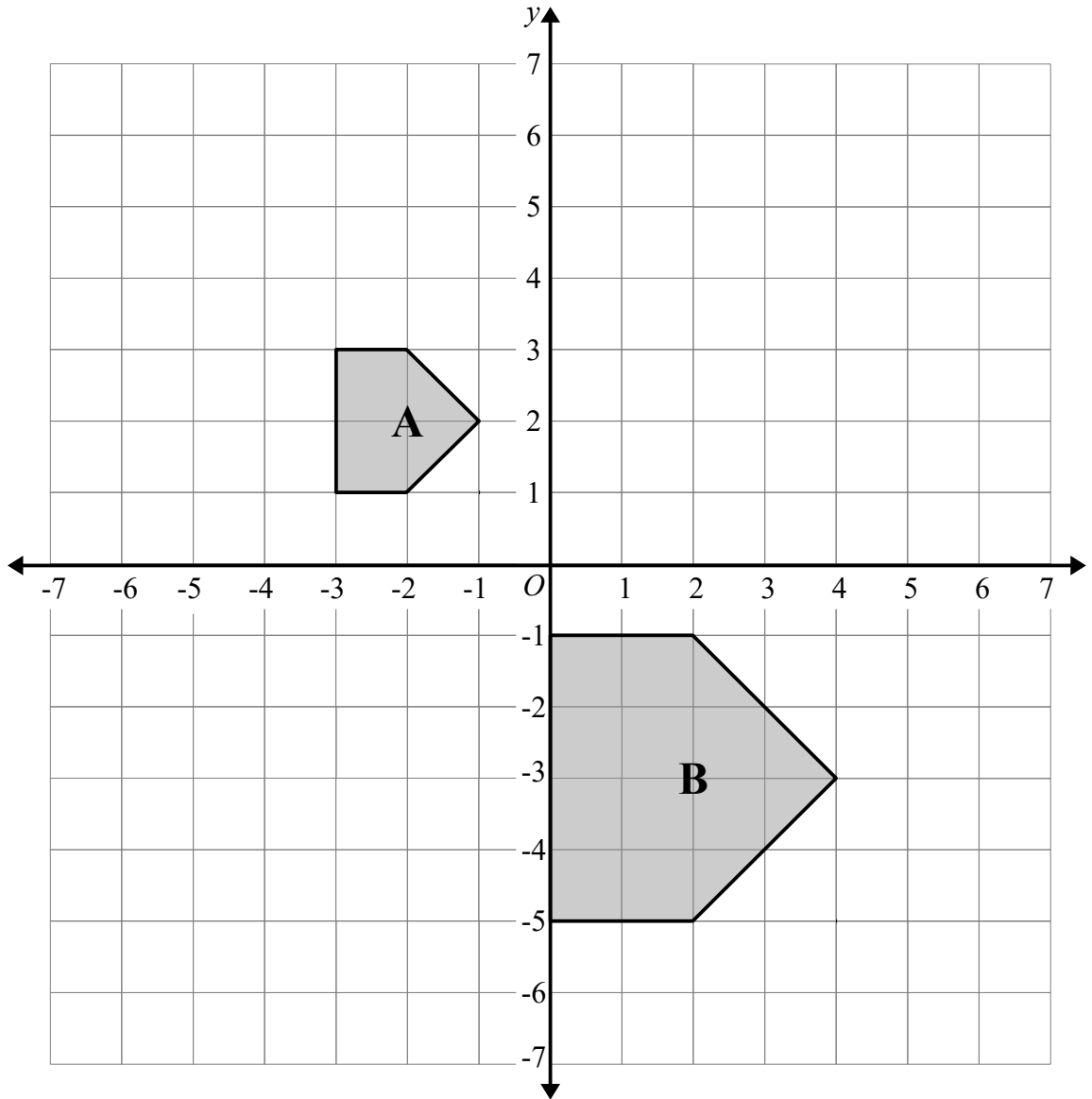


In the space below, draw a sketch of the solid shape.  
Give the dimensions of the solid on your sketch.

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(Total for Question 4 is 2 marks)

5

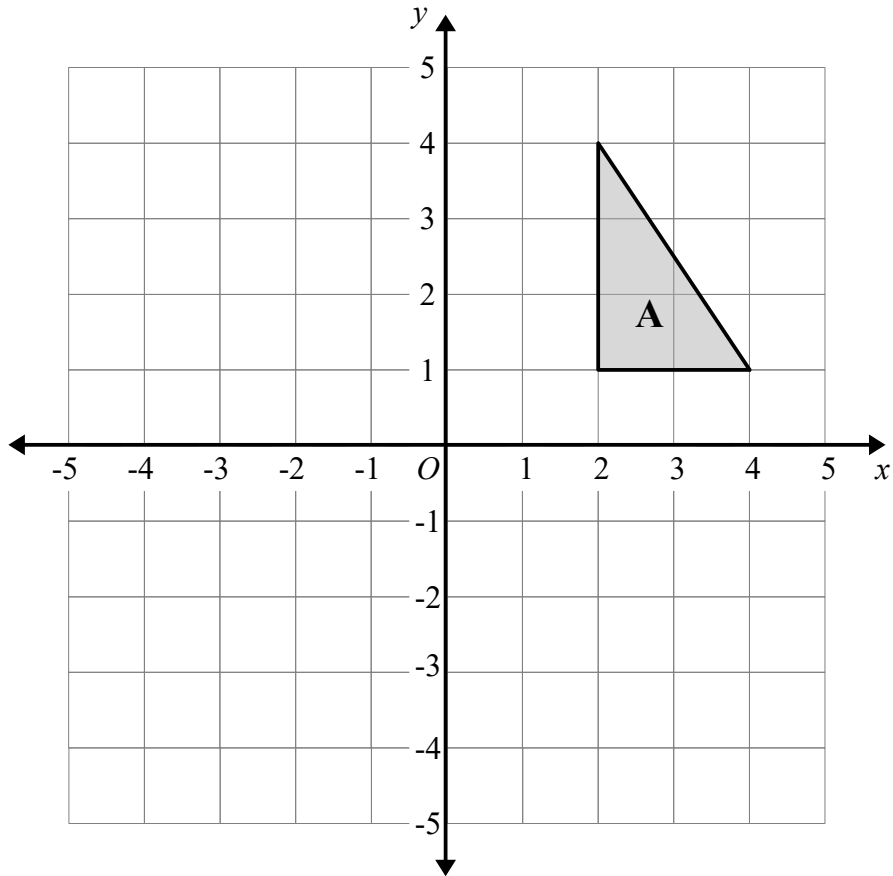


Describe fully the single transformation that maps shape **A** onto shape **B**.

.....  
.....

(Total for Question 5 is 2 marks)

6



Reflect triangle **A** in the  $x$ -axis.

(Total for Question 6 is 2 marks)

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7

(a) Write down the value of  $2^{-3}$

(b) Write down the value of  $2^0$

.....  
(1)

.....  
(1)

(Total for Question 7 is 2 marks)

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8 Work out an estimate for the value of  $\frac{9.25 \times 21.3}{0.47}$

.....  
**(Total for Question 8 is 3 marks)**

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9  $y^2 \times y^a = y^7$

(a) Find the value of  $a$ .

$(y^4)^b = y^{12}$

(b) Find the value of  $b$ .

.....  
(1)

.....  
(1)

**(Total for Question 9 is 2 marks)**

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10 (a) Expand  $4(3x - 8)$

(b) Factorise fully  $21y + 7y^2$

.....  
(1)

.....  
(2)

**(Total for Question 10 is 3 marks)**

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