Name: _____

Maths Genie Stage 6

Test D

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.**
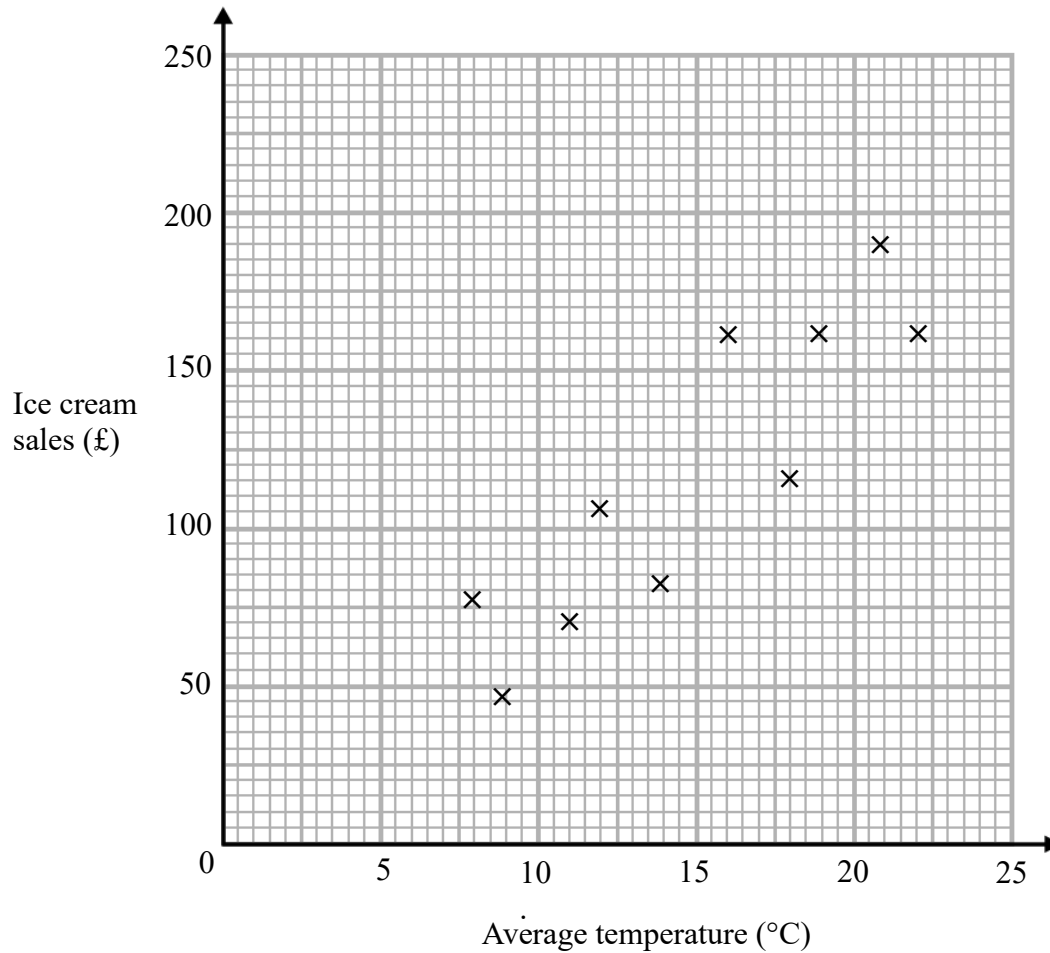• **Calculators may not be used.**

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) On the 11th day the temperature was 13°C.
Estimate the ice cream sales on the 11th day.

£...
(2)
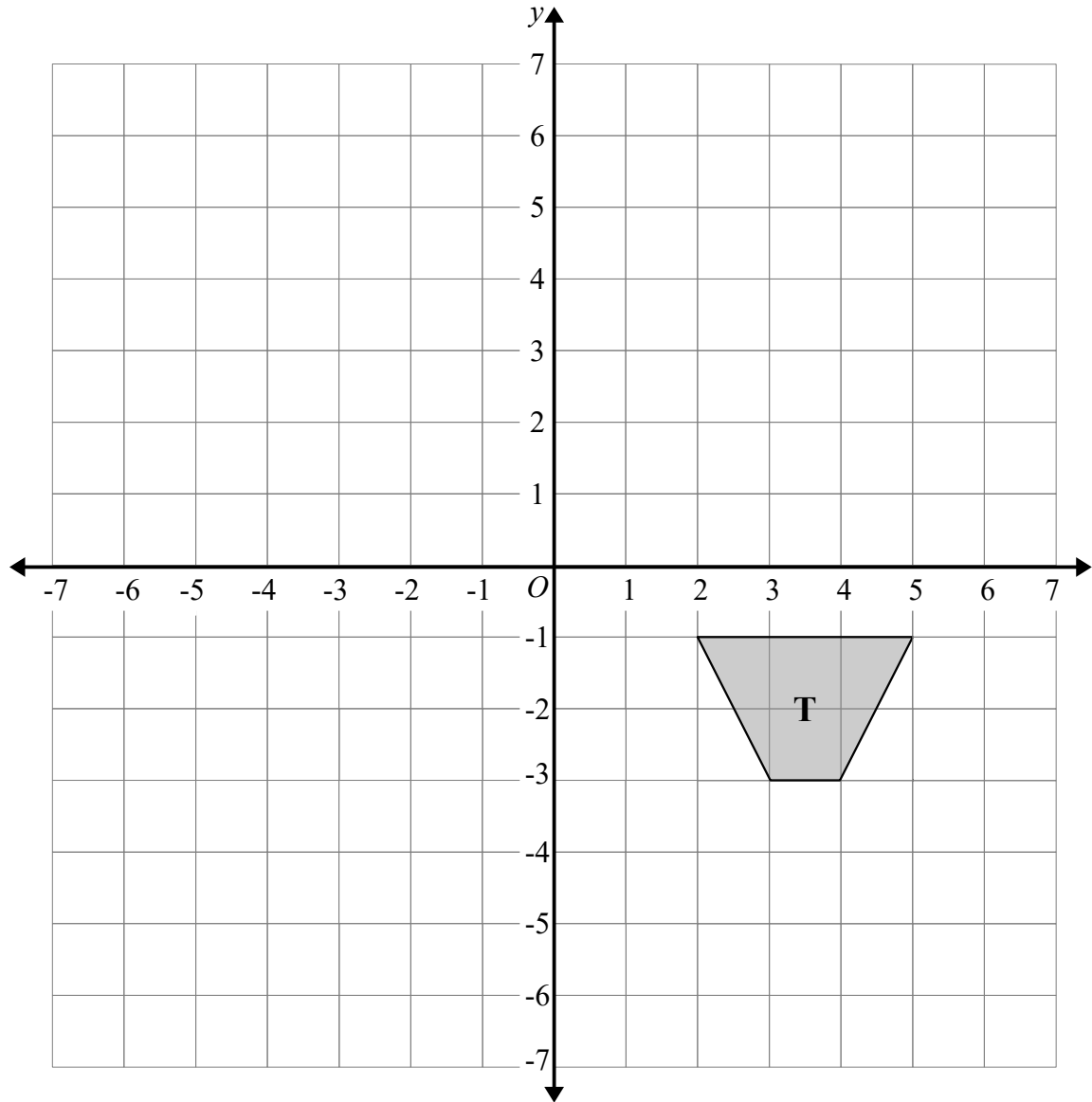
(c) The shop's manager wants to use the scatter graph to predict the ice cream sales for a day with an average temperature of 2°C. Comment on the reliability of this prediction.

....

....
(1)

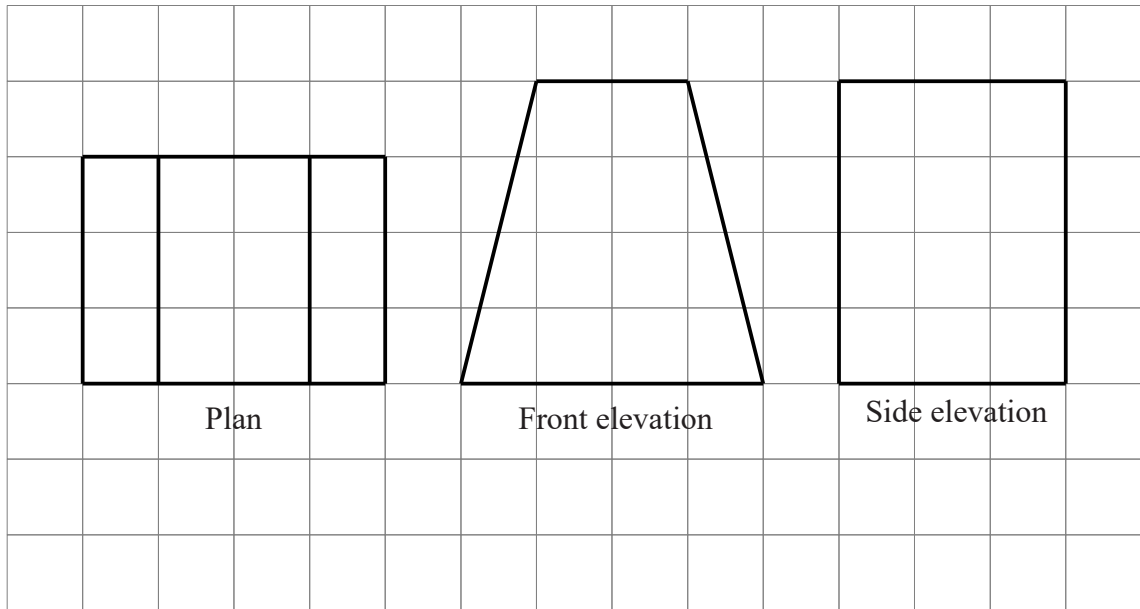**(Total for Question 1 is 4 marks)**

2

(a) Enlarge trapezium **T** by scale factor 2 centre (5, -6).
Label the new trapezium **A**.

(b) Translate trapezium **T** by the vector $\begin{pmatrix} -1 \\ -3 \end{pmatrix}$
Label the new trapezium **B**.

(Total for Question 2 is 4 marks)

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

Plan   Front elevation   Side elevation

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

4 (a) Expand $2x^2(x + 5)$

....

(2)

(b) Expand and Simplify $4(y + 7) - 2(y - 6)$

....

(2)

(Total for Question 4 is 4 marks)

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5 $\mathbf{A} = 2^4 \times 5$ $\mathbf{B} = 2^2 \times 3 \times 5$

(a) Write down the highest common factor (HCF) of **A** and **B**.

....

(1)

(b) Find the lowest common multiple (LCM) of **A** and **B**.

....

(2)

(Total for Question 5 is 3 marks)

6 (a) Given $\dfrac{x^8}{x^a} = x^{11}$

Find the value of a.

$a =$ …........................…
(1)

(b) Simplify $(5m^4)^3$

…........................…
(2)

(Total for Question 6 is 3 marks)

7 Work out an estimate for the value of $\dfrac{3.14 + \sqrt{98.9}}{0.19}$

....

(Total for Question 7 is 3 marks)

8 A number x is rounded to 3 significant figures.

The result is 36.2

Write down the error interval for x.

....

(Total for Question 8 is 2 marks)