

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

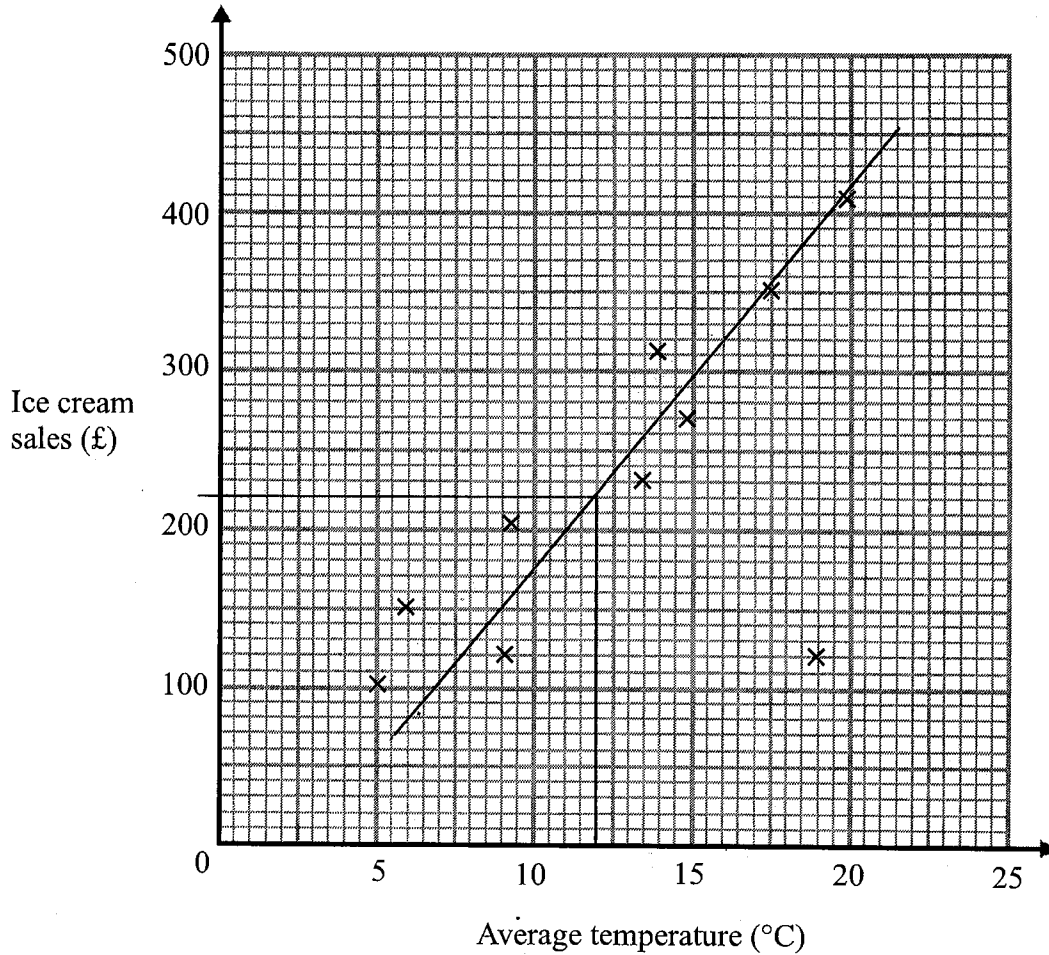
- The marks for each question are shown in brackets
– *use this as a guide as to how much time to spend on each question.*

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?

positive
(1)

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

(19), (120)
(1)

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

£ 220
[200 - 240] (2)

(Total for Question 1 is 4 marks)

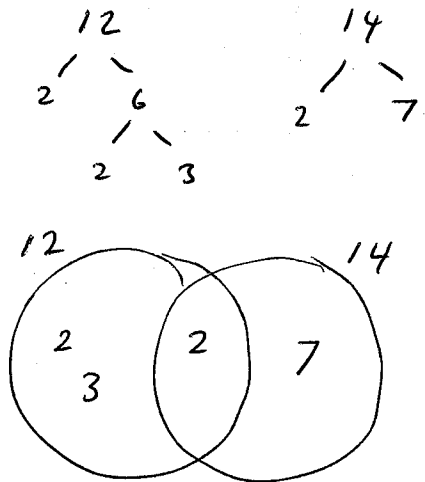
2 Two buses, bus A and bus B, both use the same bus stop.

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.



10 am
11 am } 60 mins
11:24 am } 24 mins

$$\text{LCM} = 12 \times 7 = 84$$

after 84 mins

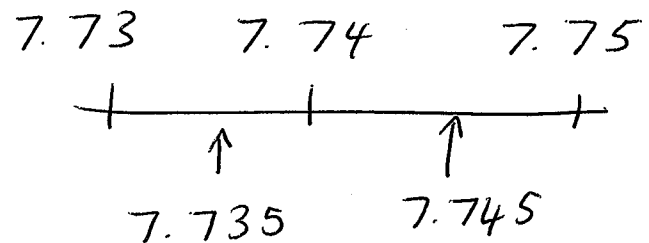
11:24 am

(Total for Question 2 is 3 marks)

3 A number y is rounded to 2 decimal places.

The result is 7.74

Write down the error interval for y .

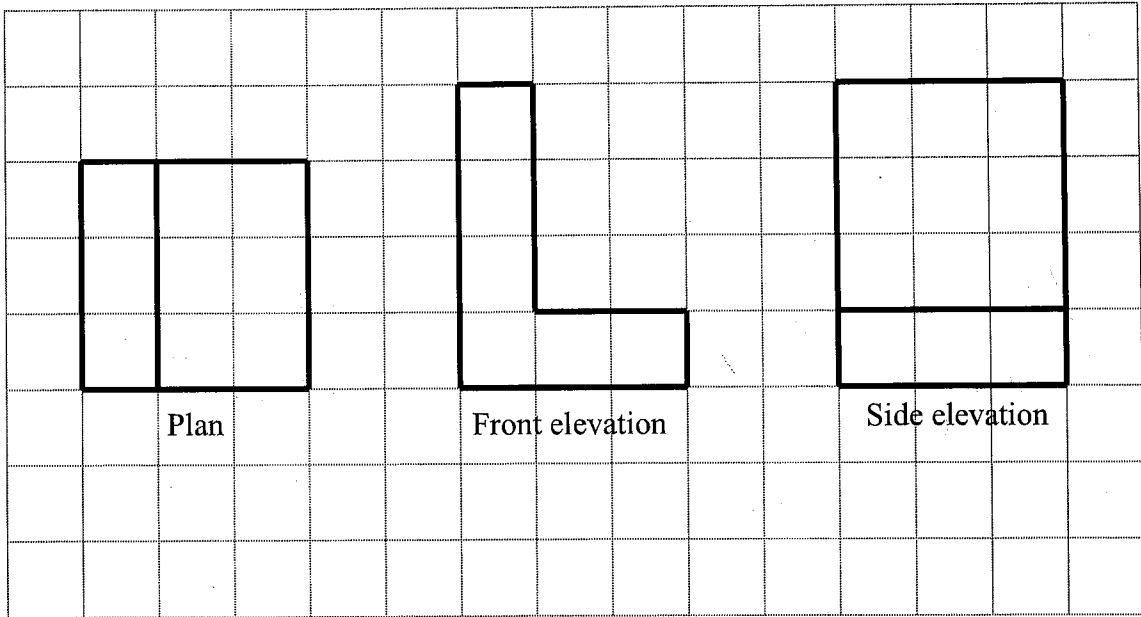


$$7.735 \leq y < 7.745$$

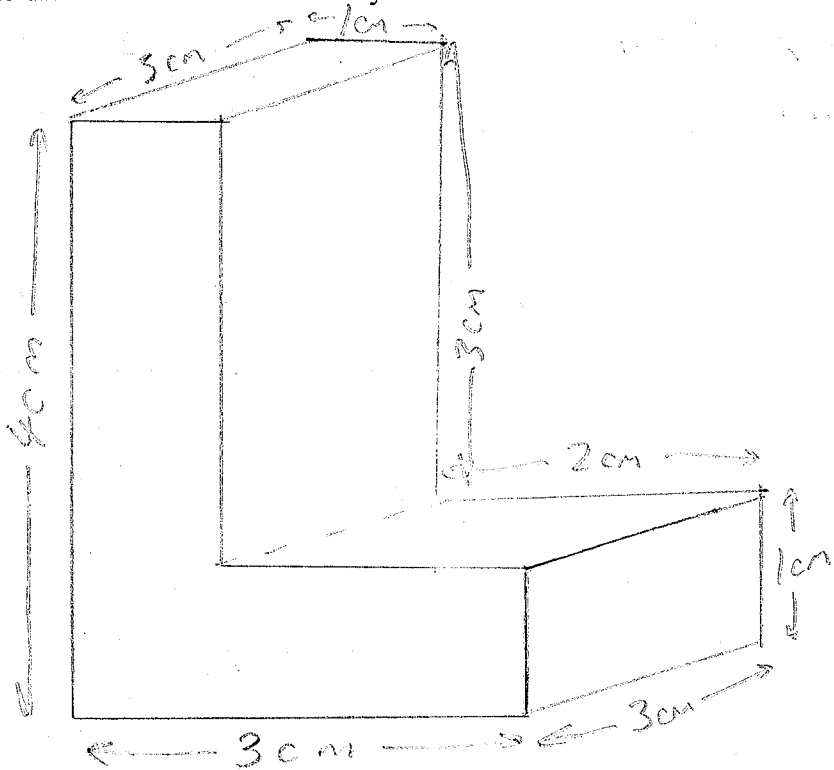
(Total for Question 3 is 2 marks)

4

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

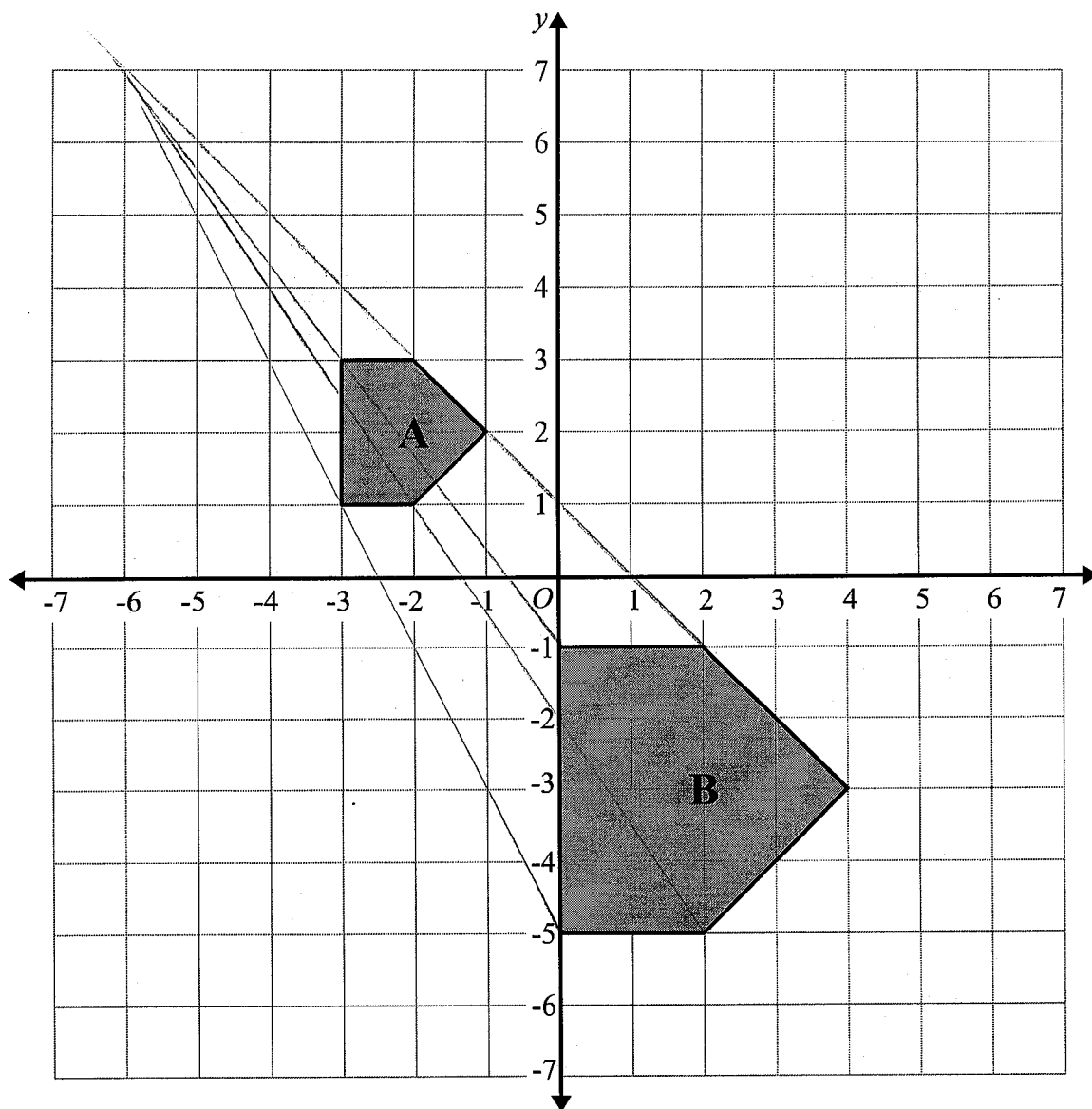


In the space below, draw a sketch of the solid shape.
Give the dimensions of the solid on your sketch.



(Total for Question 4 is 2 marks)

5

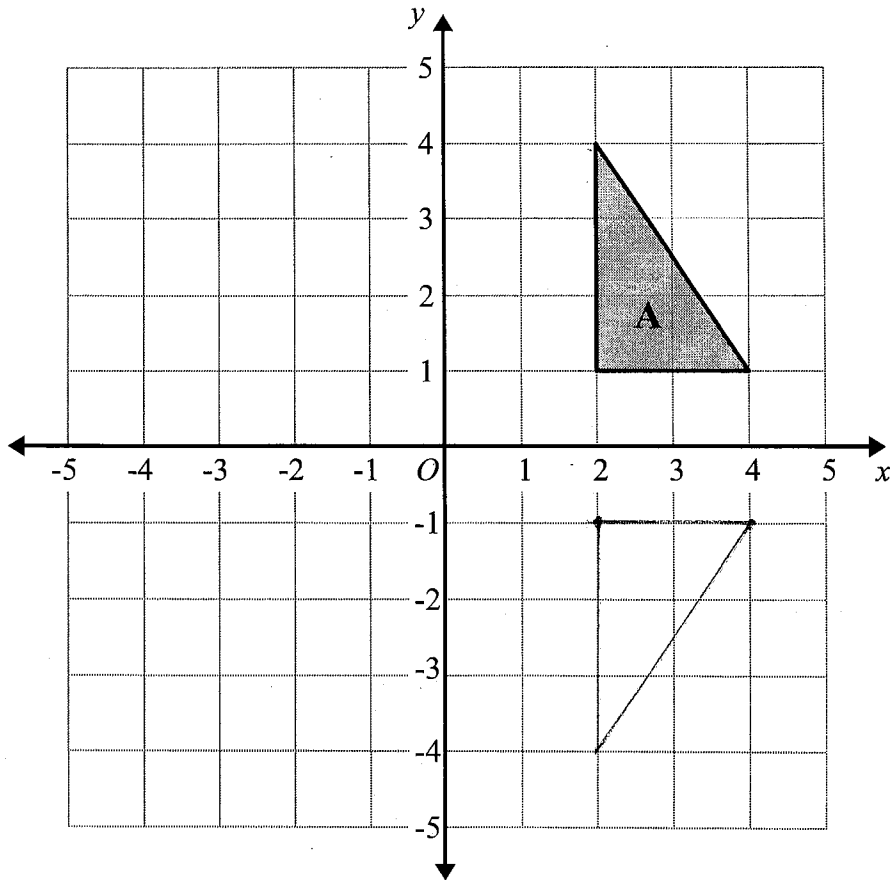


Describe fully the single transformation that maps shape A onto shape B.

..... Enlargement, Scale Factor 2,
..... centre (-6, 7)

(Total for Question 5 is 2 marks)

6



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

(Total for Question 6 is 2 marks)

7

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

$$\frac{1}{2^3}$$

$$\frac{1}{8}$$

(b) Write down the value of 2^0

(1)

(1)

(Total for Question 7 is 2 marks)

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

$$\frac{9 \times 20}{0.5} = \frac{180}{0.5} = 360$$

360

(Total for Question 8 is 3 marks)

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

- (a) Find the value of a .

$$2 + a = 7$$

$$a = 5$$

(1)

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

- (b) Find the value of b .

$$4b = 12$$

$$b = 3$$

(1)

(Total for Question 9 is 2 marks)

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

$$12x - 32$$

(1)

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

$$7y(3 + y)$$

(2)

(Total for Question 10 is 3 marks)