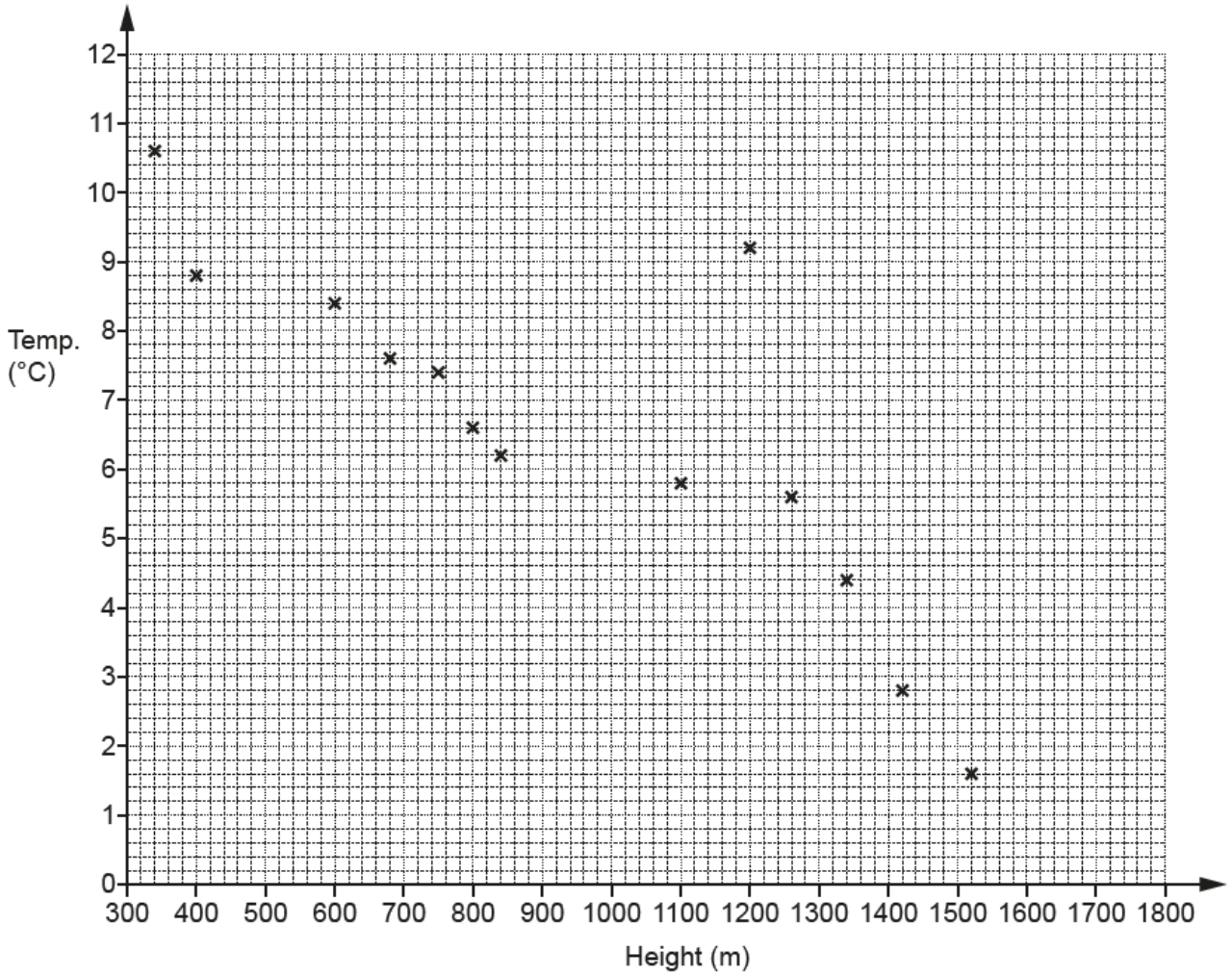
Graphs of equations and functions – 2022 GCSE Mathematics Foundation

1. June/2022/Paper_J560/01/No.21

The scatter diagram shows the midday temperature at 13 different heights on a mountain.



(a) The table has the information for 2 more heights.

Plot these on the scatter diagram.

Height (m)	500	1580
Temperature (°C)	8.8	1.2

[2]

(b) Describe the type of correlation shown in the scatter diagram.

(b) ..... **[1]**

(c) By drawing a line of best fit, estimate the temperature at 1000 m.

(c) ..... °C **[2]**

(d) Circle the outlier on the scatter diagram. **[1]**

(e) Explain why using the scatter diagram to estimate the temperature at 1800 m may be unreliable.

.....

..... **[1]**

(f) Find the percentage of the 15 temperatures which are below 6 °C.

(f) ..... % **[3]**

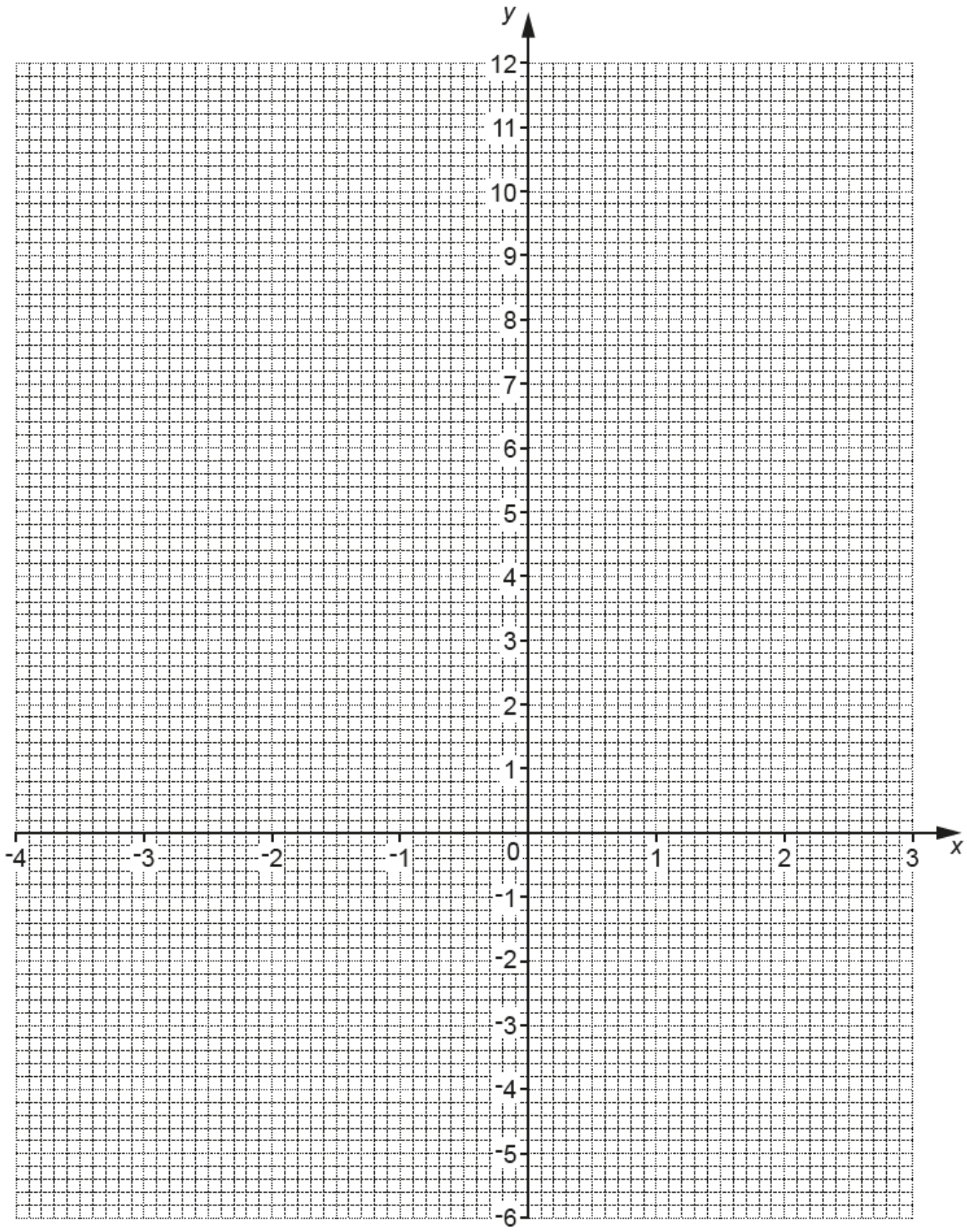
2. June/2022/Paper_J560/01/No.22

(a) Complete this table for $y = x^2 - 5$.

x	-4	-3	-2	-1	0	1	2	3
y		4	-1	-4		-4	-1	4

[2]

(b) Draw the graph of $y = x^2 - 5$ for the values of x from -4 to 3.



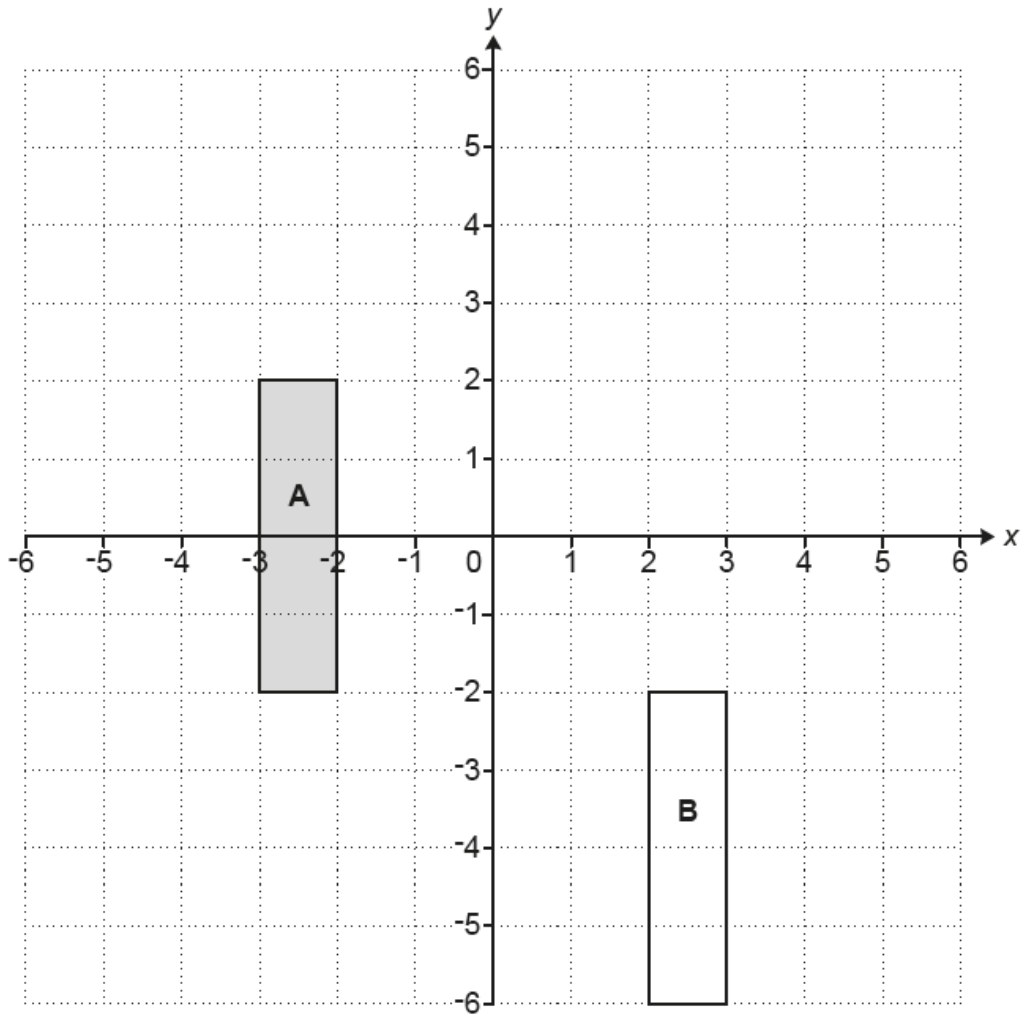
[3]

(c) Use the graph to solve the equation $x^2 - 5 = 0$.
Give your answers to **1** decimal place.

(c) $x =$ ..... or $x =$ ..... **[2]**

3. June/2022/Paper_J560/02/No.14

Rectangle **A** and rectangle **B** are drawn on the coordinate grid.



Describe fully **two** different **single** transformations that map rectangle **A** onto rectangle **B**.

1 .....

.....

.....

2 .....

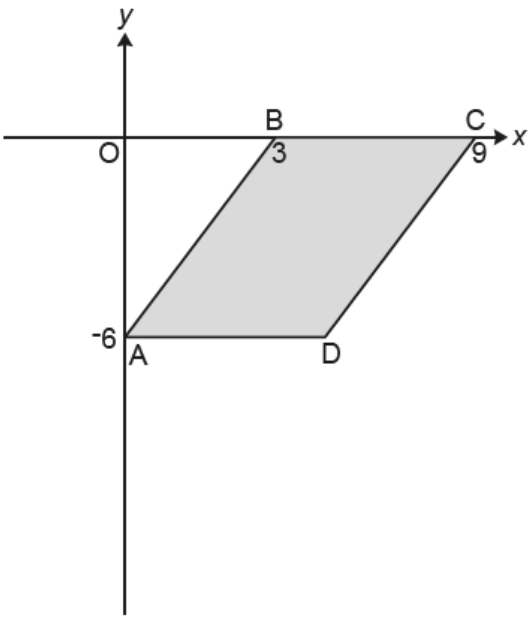
.....

.....

[6]

4. June/2022/Paper_J560/02/No.20

The graph shows a parallelogram ABCD.



Not to scale

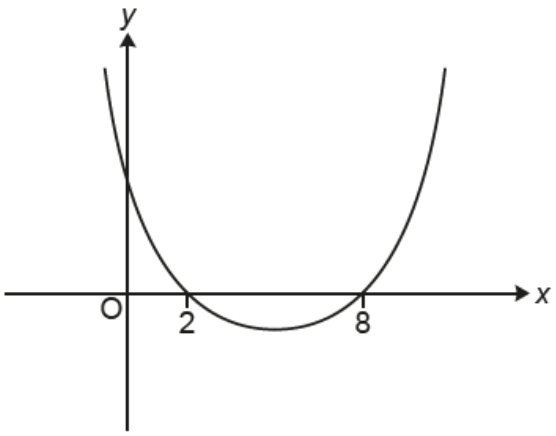
A has coordinates (0, -6), B has coordinates (3, 0) and C has coordinates (9, 0).

Find the equation of the line that passes through the points C and D, giving your answer in the form $y = mx + c$.
You must show your working.

..... **[5]**

5. June/2022/Paper_J560/03/No.23

This is a sketch of the graph of $y = x^2 - 10x + 16$.



Not to scale

(a) Write down the value of the y-intercept.

(a) ..... **[1]**

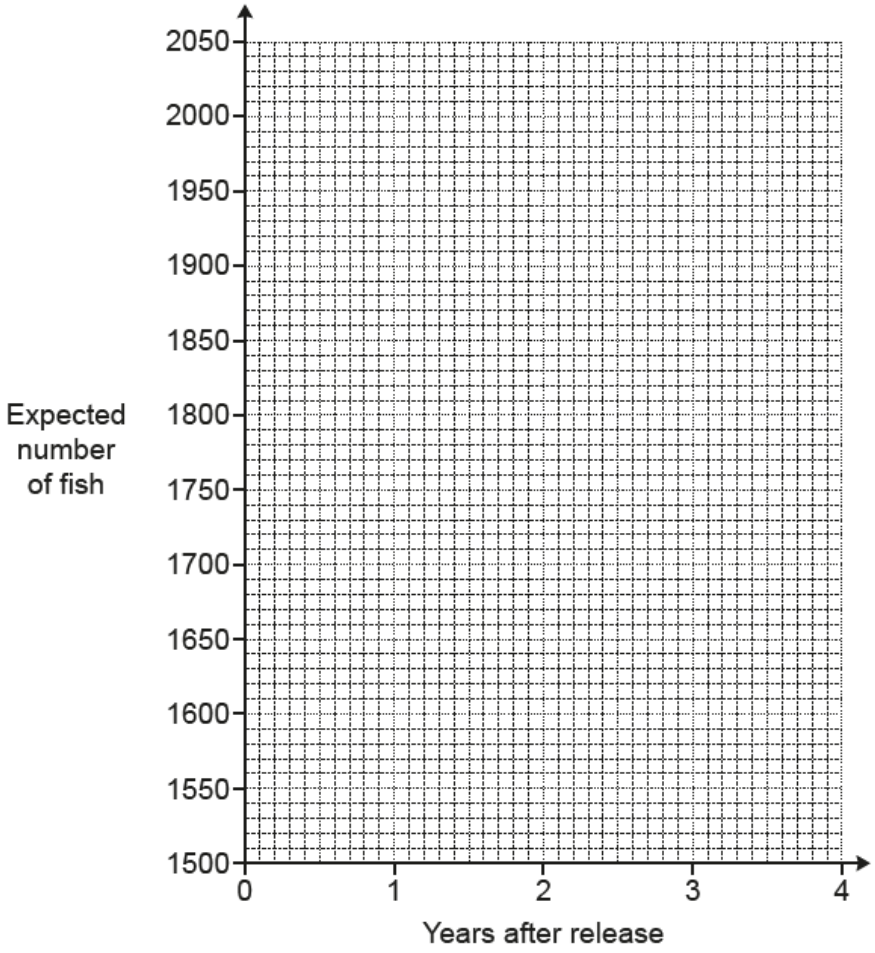
(b) Write down the x-coordinate of the turning point.

(b) ..... **[1]**

6. June/2022/Paper_J560/03/No.24(b)

1600 fish are released into a new lake which has no fish.
The number of fish is expected to increase by 5% each year.

(b) Use the table to draw a suitable graph to show the expected number of fish in the lake.



[3]