



Surname _____

Forename(s) _____

Centre Number _____

Candidate Number _____

Candidate Signature _____

I declare this is my own work.

GCSE

MATHEMATICS

F

Foundation Tier Paper 1 Non-Calculator

8300/1F

Wednesday 8 November 2023 Morning

Time allowed: 1 hour 30 minutes

[Turn over]



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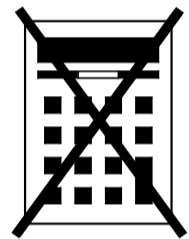


On the front of this book, write your surname and forename(s), your centre number, your candidate number and add your signature.

MATERIALS

For this paper you must have:

- **mathematical instruments**
- **the Formulae Sheet (enclosed).**



You must NOT use a calculator.

INSTRUCTIONS

- **Use black ink or black ball-point pen. Draw diagrams in pencil.**
- **Answer ALL questions.**

[Turn over]



- **You must answer the questions in the spaces provided. Do not write on blank pages.**
- **If you need extra space for your answer(s), use the lined pages at the end of this book. Write the question number against your answer(s).**
- **Do all rough work in this book. Cross through any work you do not want to be marked.**

INFORMATION

- **The marks for questions are shown in brackets.**
- **The maximum mark for this paper is 80.**
- **You may ask for more answer paper, graph paper and tracing paper. These must be tagged securely to this answer book.**



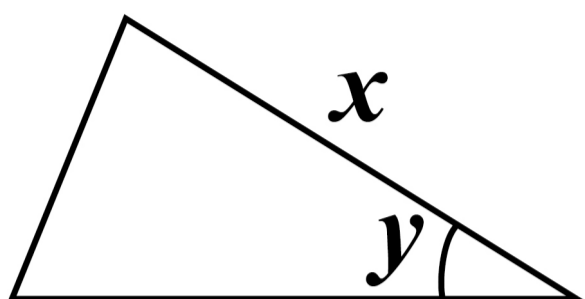
ADVICE

In all calculations, show clearly how you work out your answer.

DO NOT TURN OVER UNTIL TOLD TO DO SO



2 Here is a triangle.



2 (a) Measure the length of side x .

**Give your answer in millimetres.
[1 mark]**

$x =$ _____ mm

2 (b) Measure angle y . [1 mark]

$y =$ _____ °

[Turn over]



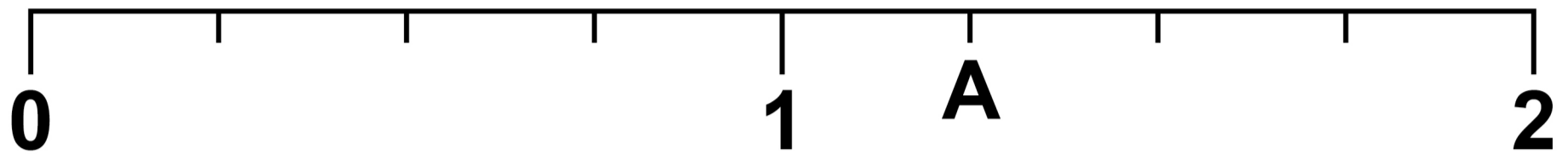
3 Write a number in the box to make the statement correct. [1 mark]

$$3.7 < \boxed{}$$

6



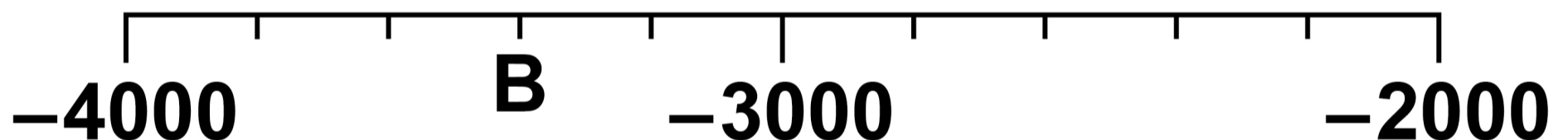
4 (a) Here is a number line.



Which number is at A? [1 mark]

Answer _____

4 (b) Here is another number line.



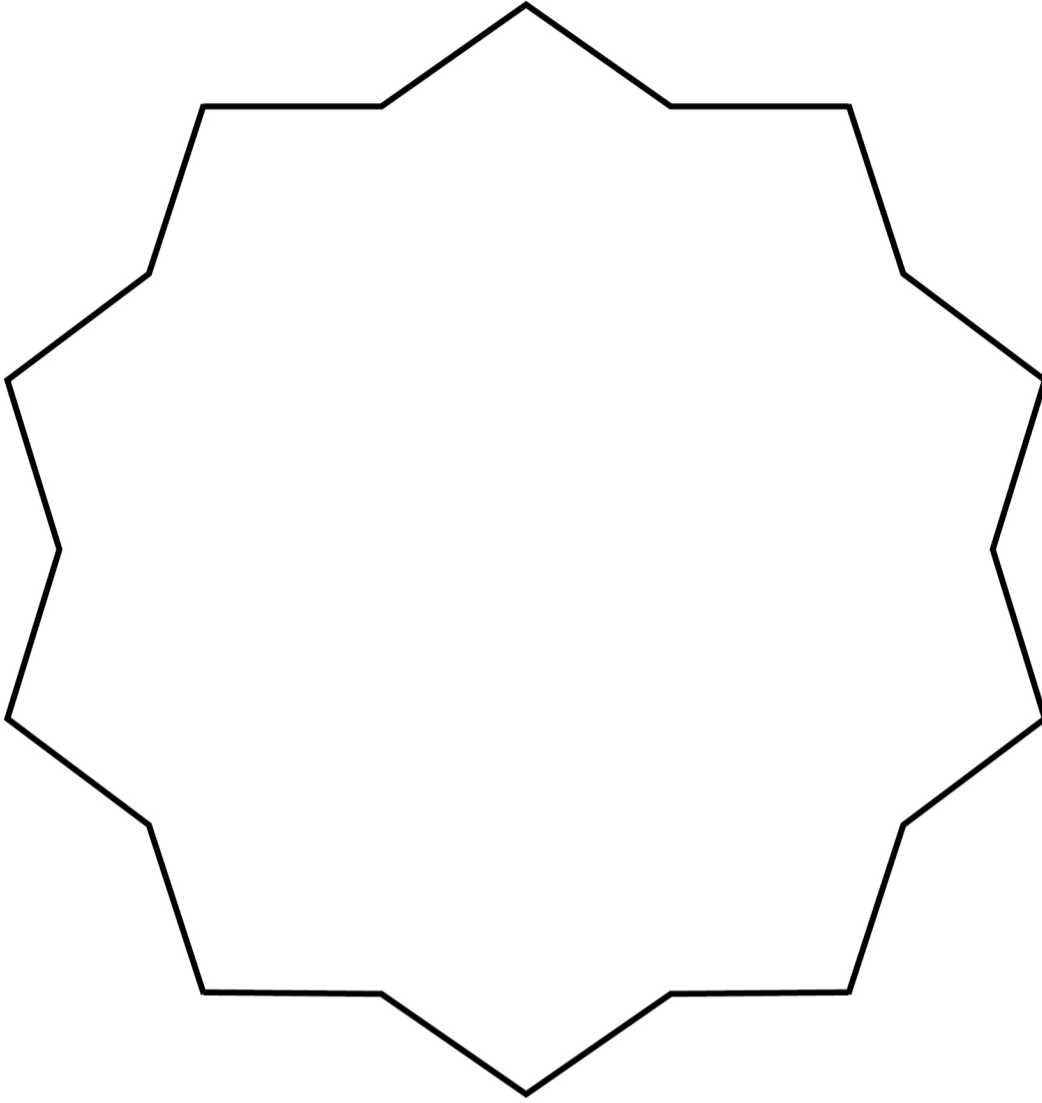
Which number is at B? [1 mark]

Answer _____

[Turn over]



5 Here is a shape.



Write down the order of rotational symmetry of the shape. [1 mark]

Answer _____

3



6 (a) Simplify fully $a + a + a + a$
[1 mark]

Answer _____

6 (b) Factorise $5a + 10$ [1 mark]

Answer _____

6 (c) Multiply out $4(10 - x)$ [2 marks]

Answer _____

[Turn over]



7 Ollie and Rachel run a marathon race.

7 (a) Ollie starts the race at 9.15 am

He takes $3\frac{3}{4}$ hours to finish the race.

**At what time does he finish?
[2 marks]**

Answer _____



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[Turn over]



15

Answer _____ minutes

9

[Turn over]



8 Shamira uses a tally chart to record the vehicles passing her school.

Here is her chart with the tallies.

Each 5-bar gate (𠄎) represents 5 vehicles.

VEHICLE	TALLY	FREQUENCY
Car	𠄎 𠄎 𠄎 𠄎	
Bus	𠄎 𠄎	
Van	𠄎	
Lorry		

8 (a) Shamira says,

“The number of cars is more than the TOTAL of the other vehicles because cars have four 5-bar gates and the others only have three 5-bar gates.”



Is she correct?

Tick a box.

Yes

No

Show working to support your answer. [2 marks]

[Turn over]



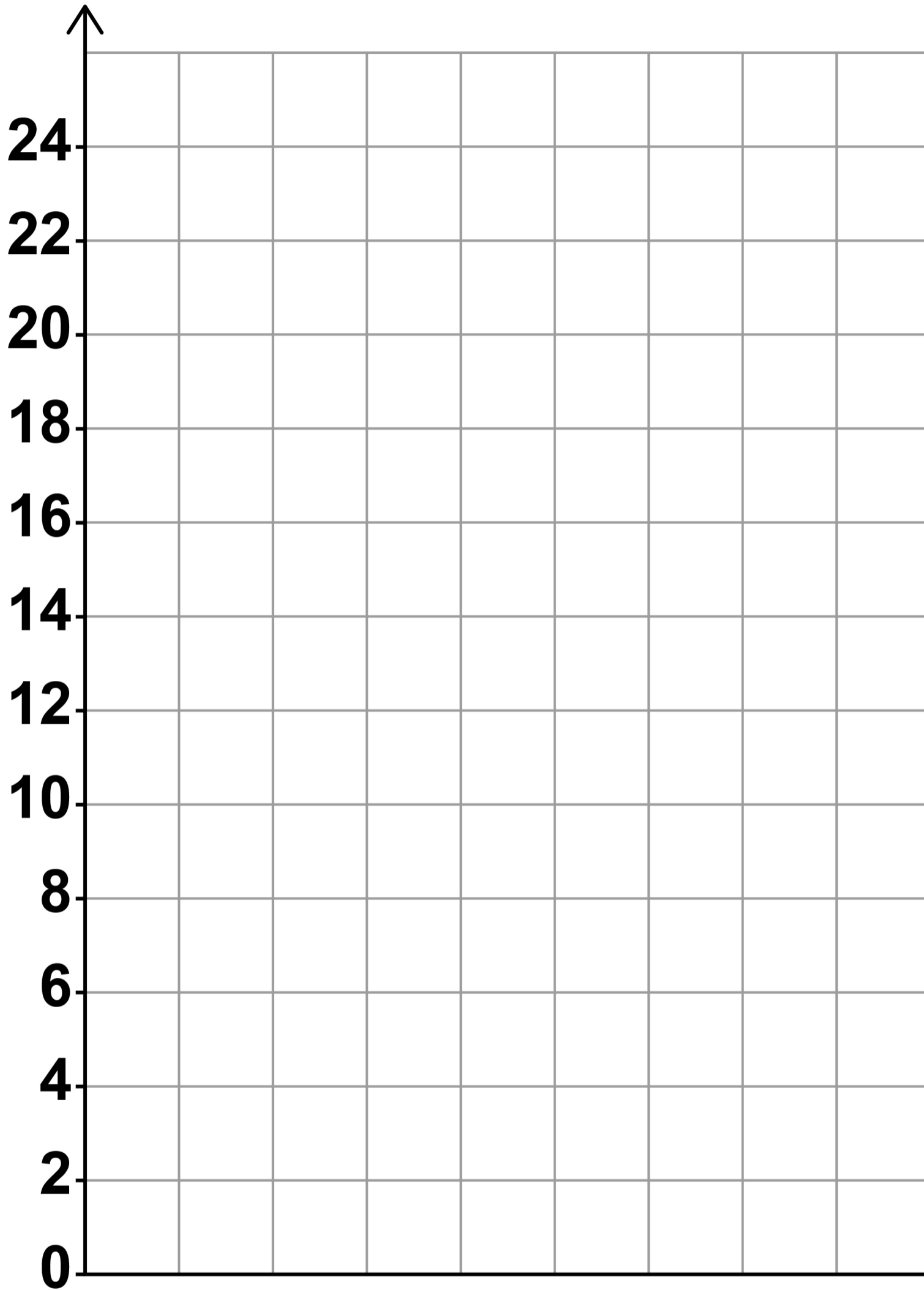
REPEAT OF TALLY CHART

VEHICLE	TALLY	FREQUENCY
Car		
Bus		
Van		
Lorry		

8 (b) On the grid opposite, draw a bar chart to represent the data in the tally chart. [3 marks]



Frequency



[Turn over]

5



- 9 Put the whole numbers 1 to 12 into the boxes to make the calculations correct.**

**Only use each number ONCE.
[3 marks]**

$$\boxed{} + \boxed{} + \boxed{} = \boxed{7}$$

$$\boxed{} + \boxed{} + \boxed{} = \boxed{32}$$

$$\boxed{} + \boxed{} + \boxed{} = \boxed{15}$$

$$\boxed{} + \boxed{} + \boxed{} = \boxed{24}$$



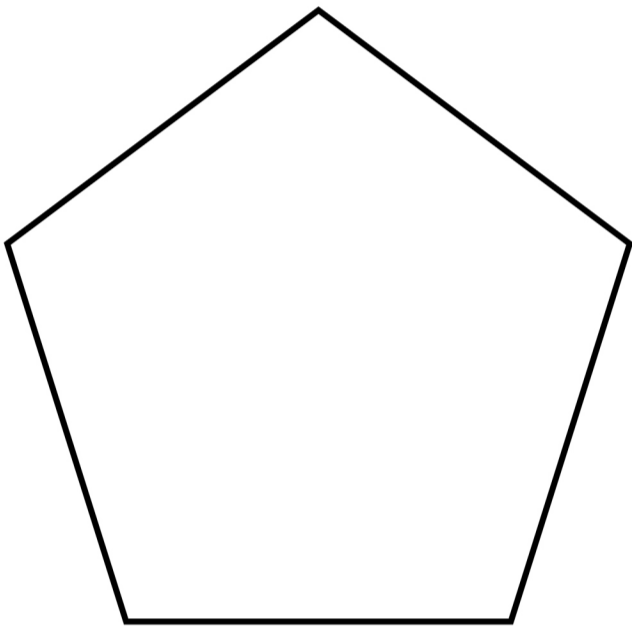
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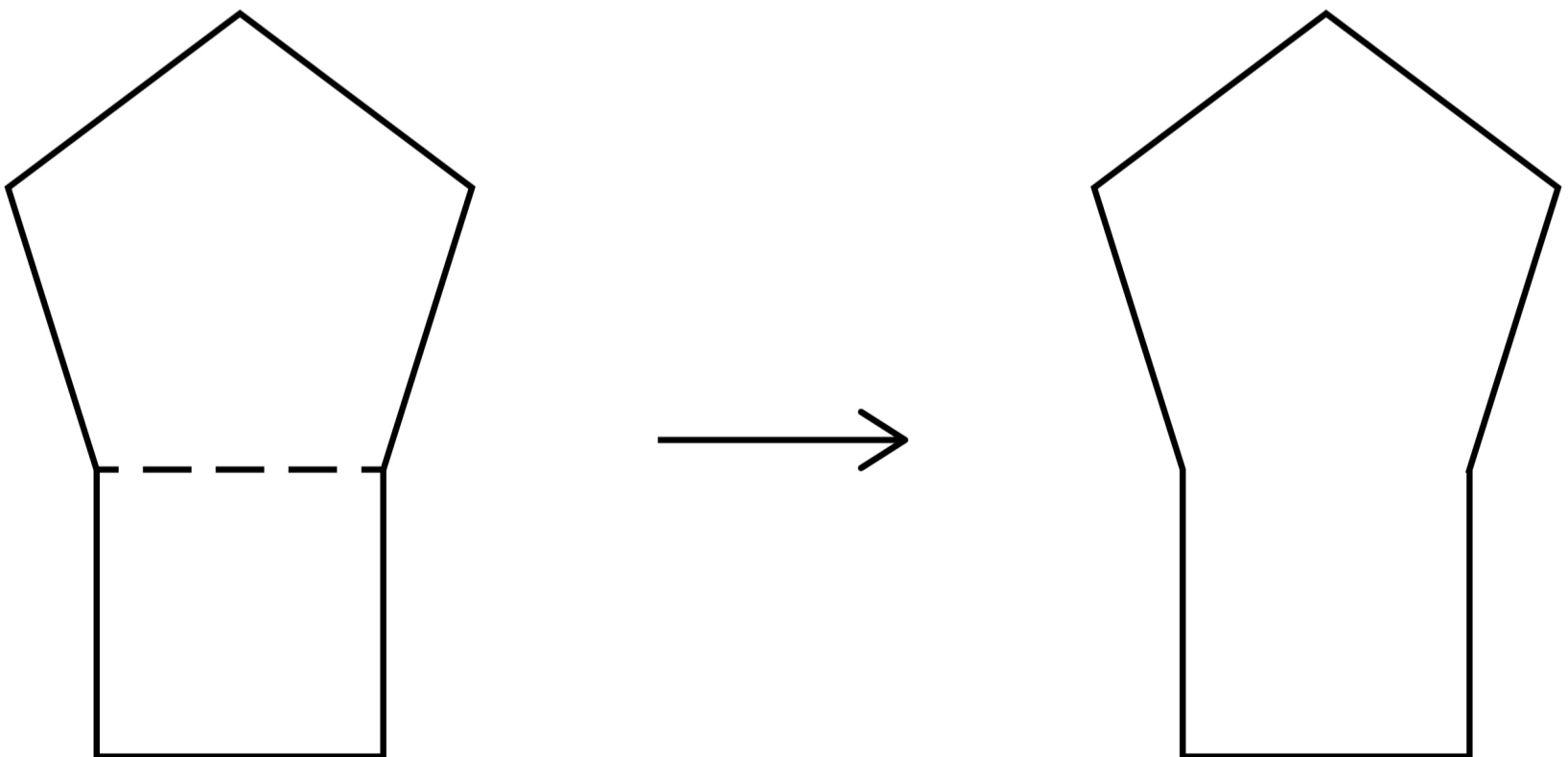


10 A REGULAR pentagon has perimeter 100 mm

The diagrams are not drawn accurately.



A shape is made by joining a square to the pentagon.



11 Last week, Erik worked for 10 hours.

He paid no tax and received £90

11 (a) This week, Erik works for 15 hours.

He assumes he will be paid at the same rate and pay no tax.

How much does he expect to receive this week? [3 marks]

Answer £ _____

[Turn over]



11 (b) In fact, THIS WEEK, Erik is paid an extra 50p per hour pays £8.90 tax.

What does this tell you about the amount he receives?

Tick ONE box.

- It is less than he expected**
- It is the same as he expected**
- It is more than he expected**

Show working to support your answer. [2 marks]

5

[Turn over]



12 Complete the list of six numbers so that

the mode is 9

the median is 13

the range is 11

[3 marks]

<input type="text"/>	<input type="text" value="9"/>	<input type="text"/>	<input type="text"/>	<input type="text" value="17"/>	<input type="text"/>
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13 A shape has

- **an even number of sides**
- **more sides than a square**
- **fewer sides than a decagon**

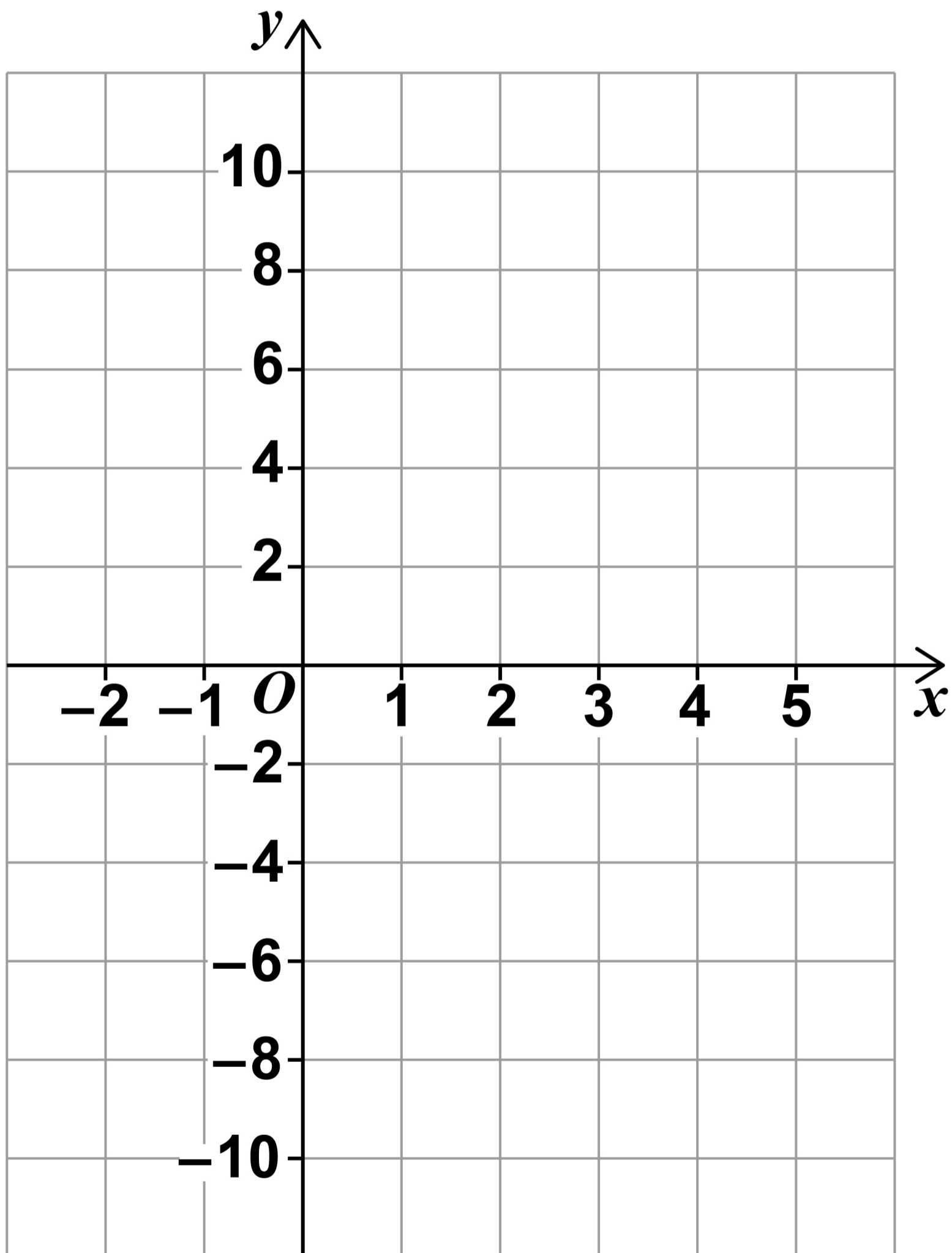
Write down the name of ONE shape this could be. [1 mark]

Answer _____

[Turn over]



- 14 On the grid, draw the graph of $y = 2x - 6$ for values of x from -2 to 5 [3 marks]



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[Turn over]

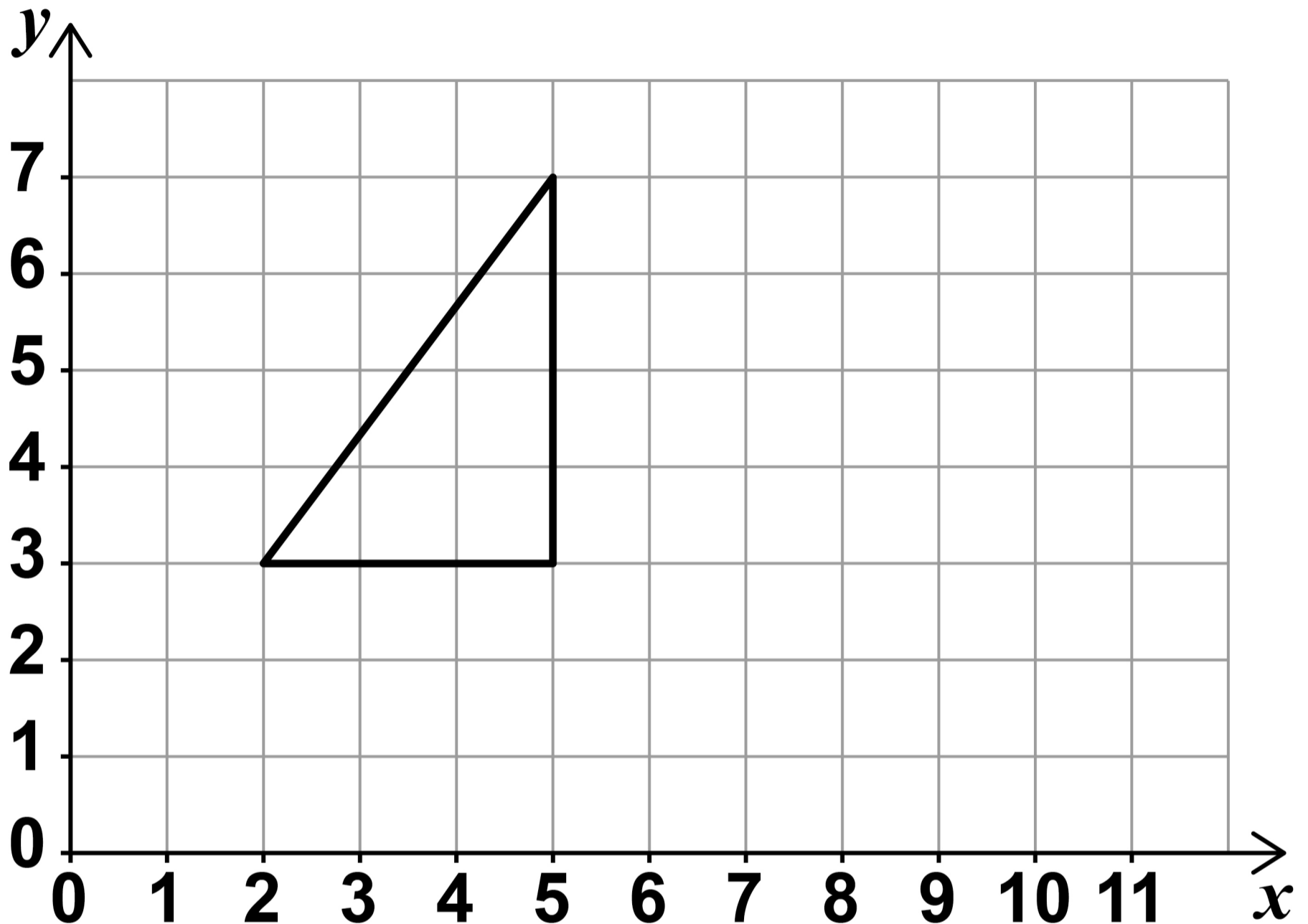


Answer _____

[Turn over]



16 Here is a triangle on a grid.



The triangle is reflected in a vertical line.

Two of the vertices of the reflected triangle are at (7, 3) and (7, 7)



16 (a) What are the coordinates of the other vertex of the reflected triangle? [1 mark]

Answer (_____ , _____)

16 (b) What is the equation of the line of reflection? [1 mark]

Answer _____

5

[Turn over]



17 Ali has £80

He gives $\frac{9}{10}$ of his money to Joe.

Joe spends $\frac{2}{3}$ of this money.

He gives the rest back to Ali.

What fraction of the £80 does Ali have now?

Give your answer in its simplest form. [4 marks]

19 What does $(A \cup B)$ represent in $P(A \cup B)$?

Circle your answer. [1 mark]

A or B or both

A and B

not A and not B

A but not B

8

[Turn over]



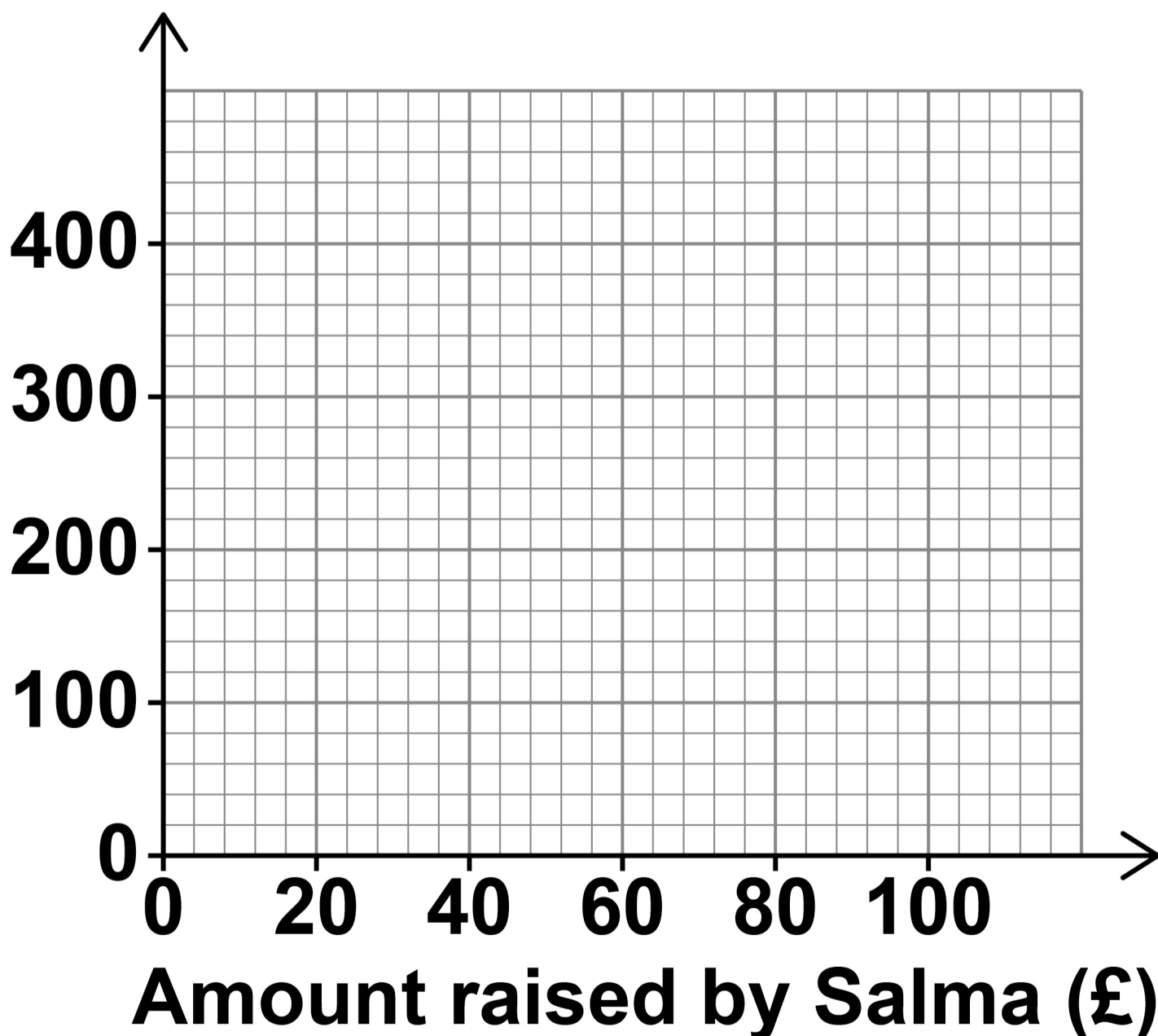
20 Salma is raising money for charity.

Her mum says,

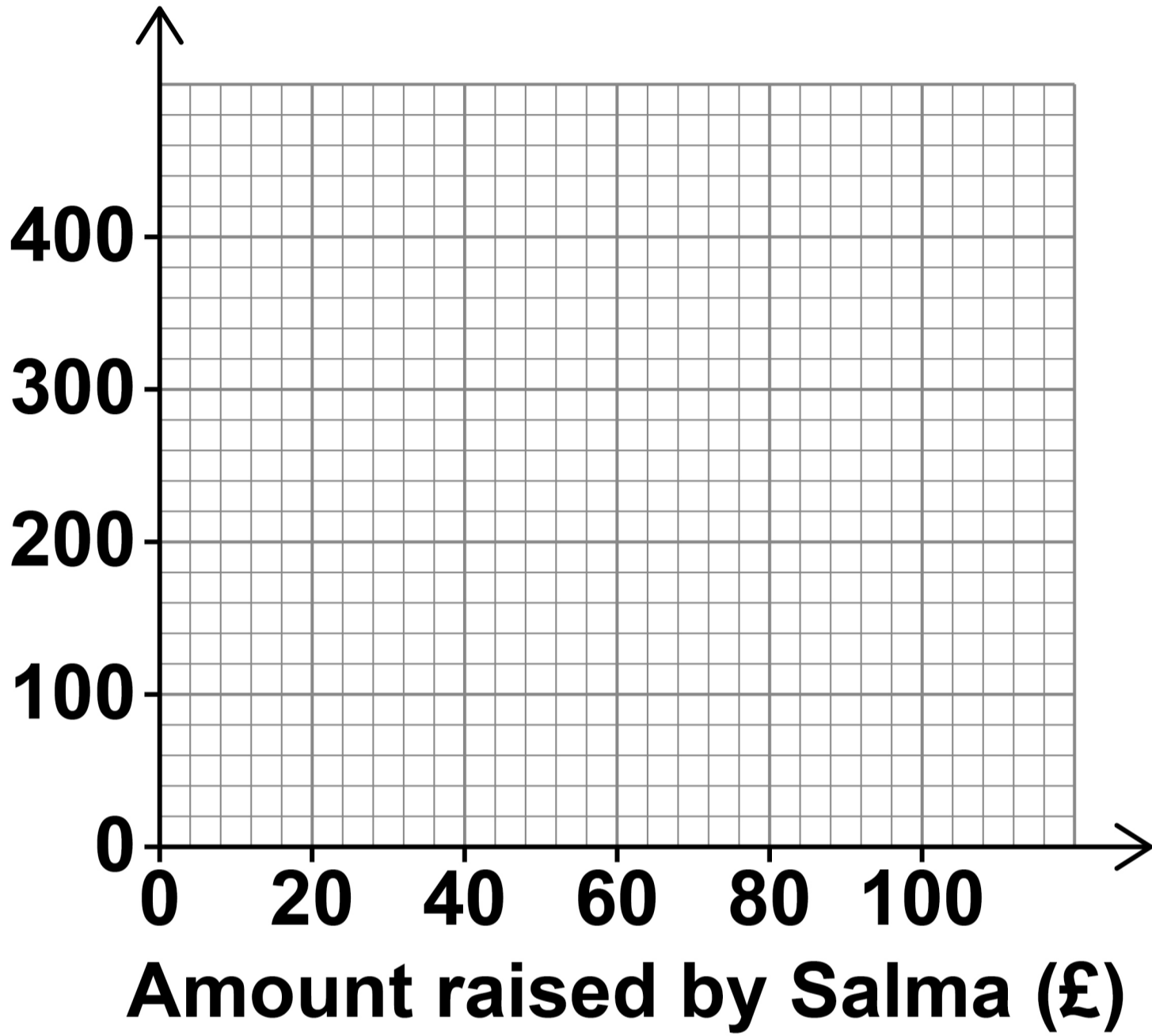
“Whatever amount you raise, I will ADD double that amount.”

Show this information by drawing a graph on EACH grid below and on the opposite page. [2 marks]

**Amount added
by mum (£)**



Total amount raised (£)



[Turn over]



**21 Write down the value of $\cos 90^\circ$
[1 mark]**

Answer _____

**22 Work out the value of
 $(8^2 \times 8) \div (8^9 \div 8^5)$**

**Give your answer as a decimal.
[3 marks]**



Answer _____

- 23 Write down the equation of a line parallel to $y = 3x + 1$ [1 mark]**

Answer _____

<hr/>
7

[Turn over]



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24 A music company releases 10 albums.

The scatter graph, on page 46, shows, for each album,

the number of downloads on the first day

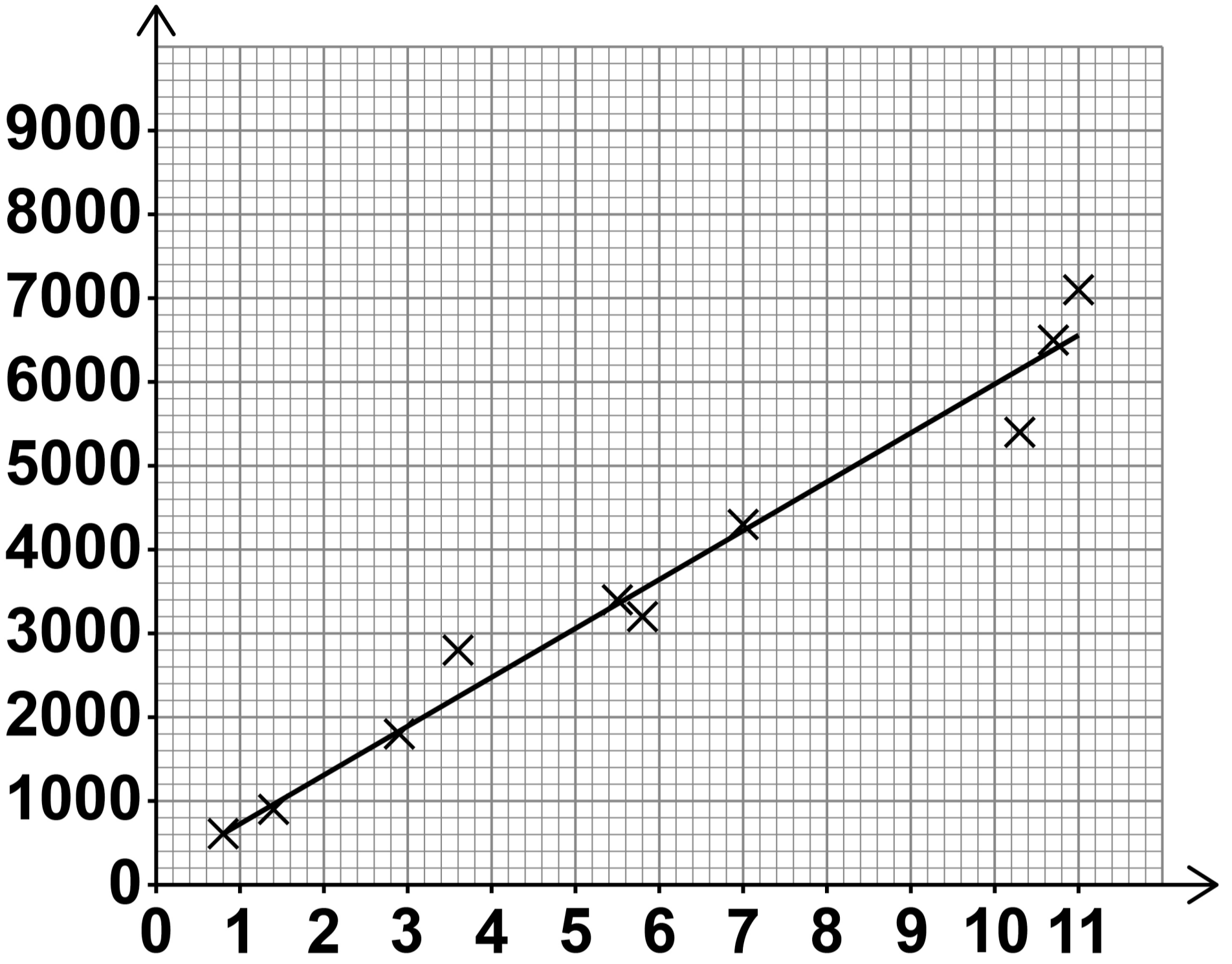
and

the number of CDs sold on the first day.

A line of best fit has been drawn on the scatter graph.

[Turn over]

**Number of
CDs sold**



**Number of downloads
(000s – thousands)**



24 (a) The scatter graph shows positive correlation.

Describe the relationship between number of downloads and number of CDs sold. [1 mark]

[Turn over]

**24 (b) The company earns
£2.50 for each download
and
£3 for each CD sold.**

**The company releases another
album.**

**On the first day it has 9000
downloads.**

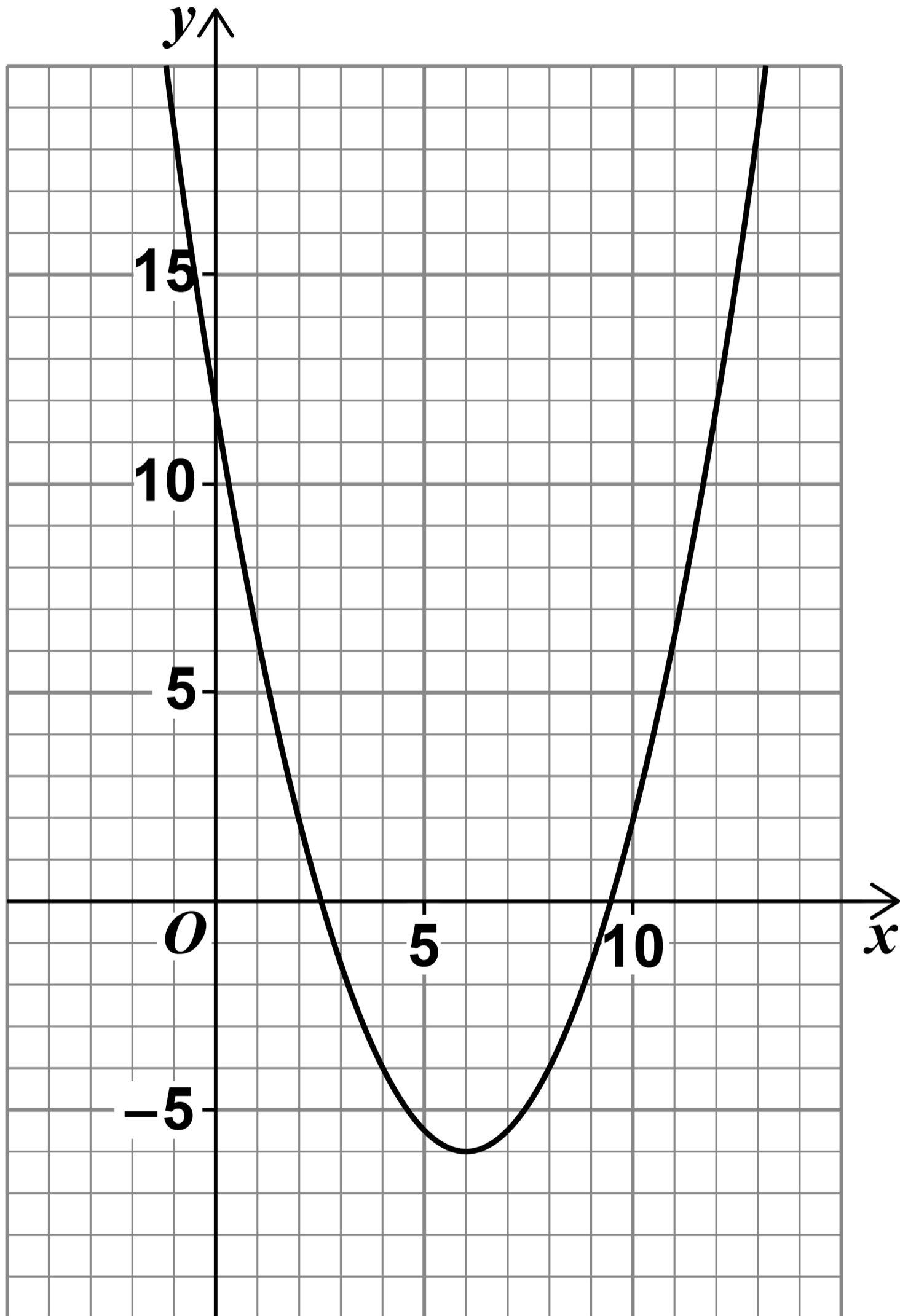
**Estimate the TOTAL amount the
company earns from downloads
and CDs of the album that day.
[3 marks]**

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[Turn over]



26 Here is the graph of
 $y = 0.5x^2 - 6x + 12$



USE THE GRAPH to estimate the solutions of $0.5x^2 - 6x + 12 = 0$
[2 marks]

Answer _____

<hr/>
5

[Turn over]



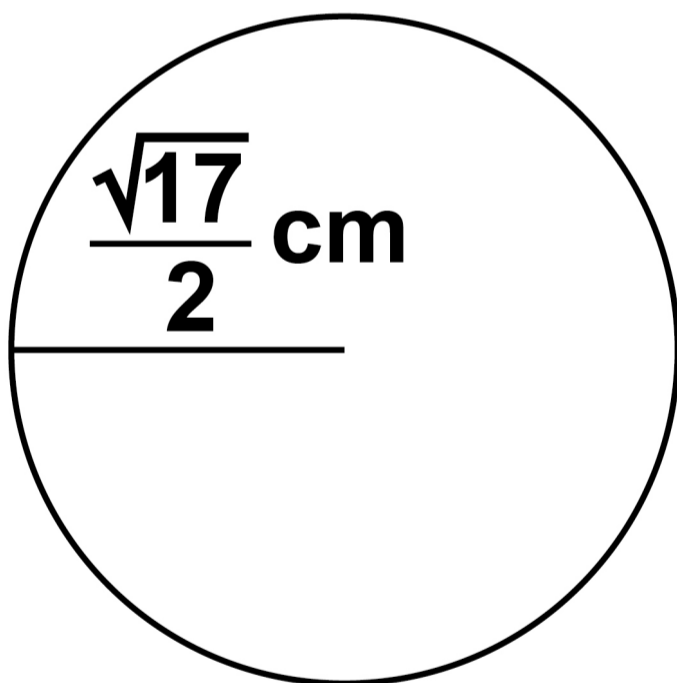
27 Shape A is a circle with radius

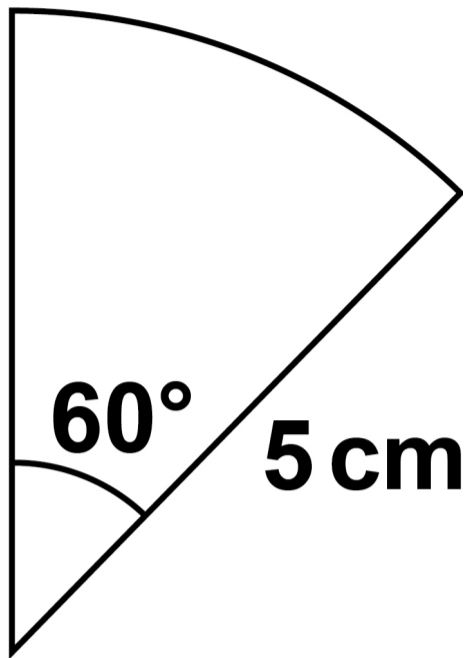
$$\frac{\sqrt{17}}{2} \text{ cm}$$

Shape B is a sector of a circle with radius 5 cm

The diagrams are not drawn accurately.

SHAPE A



SHAPE B

**Which shape has the greater area,
A or B?**

**You MUST show your working.
[5 marks]**

[Turn over]



Answer _____

28 **Factorise** $x^2 + 2x - 24$ **[2 marks]**

Answer _____

[Turn over]



29(a) Write 2×10^3 as an ordinary number. [1 mark]

Answer _____



29 (b) Simplify $(2 \times 10^3) : (5 \times 10^{-1})$

Give your answer in the form
 $n : 1$ [2 marks]

Answer _____ :1

10

END OF QUESTIONS



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For Examiner's Use	
Pages	Mark
6–8	
9–10	
11–15	
16–19	
20–23	
24–27	
28–30	
32–35	
36–39	
40–43	
45–49	
50–53	
54–59	
TOTAL	

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