



General Certificate of Secondary Education  
November 2023

Centre Number

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Candidate Number

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# Mathematics

Unit M6 Paper 2  
(With calculator)

Foundation Tier

[GMC62]



\*GMC62\*

**THURSDAY 23 NOVEMBER, 10.45 am – 11.45 am**

## TIME

1 hour.

## INSTRUCTIONS TO CANDIDATES

Write your Centre Number and Candidate Number in the spaces provided at the top of this page.

**You must answer the questions in the spaces provided.**

**Do not write outside the boxed area on each page, on blank pages or tracing paper.**

Complete in black ink only. **Do not write with a gel pen.**

Answer **all seventeen** questions.

All working should be clearly shown in the spaces provided. Marks may be awarded for partially correct solutions.

You **may** use a calculator for this paper.

## INFORMATION FOR CANDIDATES

The total mark for this paper is 50.

Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question.

You should have a calculator, ruler, compasses and a protractor.

The Formula Sheet is on page 2.

14120



\*24GMC6201\*

# Formula Sheet

$$\text{Area of trapezium} = \frac{1}{2}(a + b)h$$



$$\text{Volume of prism} = \text{area of cross section} \times \text{length}$$



1 Two companies offer Jack a job as a car mechanic.

**The Car Guys** will pay Jack £112.70 per day, working Monday to Friday.

**Dr Auto** will pay Jack £15.49 an hour for a 37-hour week.

Which company pays the higher weekly wage, and by how much?

**Show your working.**

Answer \_\_\_\_\_ pays £ \_\_\_\_\_ more each week [3]



2 (a) Tom, a quarterback, weighs 16 stone 5 pounds.

1 stone = 14 pounds

What is Tom's weight in pounds?



© Getty Images

Answer \_\_\_\_\_ pounds [1]

(b) Andy, a rugby player, weighs 120 kg.

Who is heavier, Tom or Andy?

Show all working clearly.

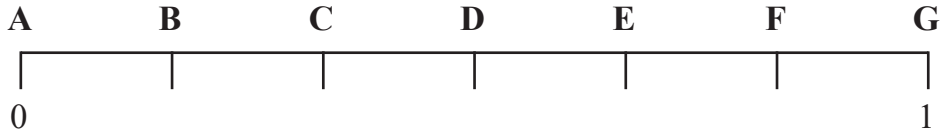


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Answer \_\_\_\_\_ [2]



3

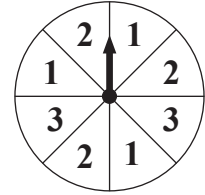


The probability scale shown has been labelled with letters **A** to **G**.

Write down **the letter** which matches the probability of the following events happening.

(a) This spinner is spun once.

It lands on a number less than 4



Answer \_\_\_\_\_ [1]

(b) A fair dice is thrown.

It lands on an even number.



© Getty Images

Answer \_\_\_\_\_ [1]

(c) There are 12 beads in a bag.

Five beads are blue, three beads are pink, and the rest are yellow.

A bead is taken out of the bag at random.

The bead taken is yellow.



Answer \_\_\_\_\_ [1]

[Turn over



4

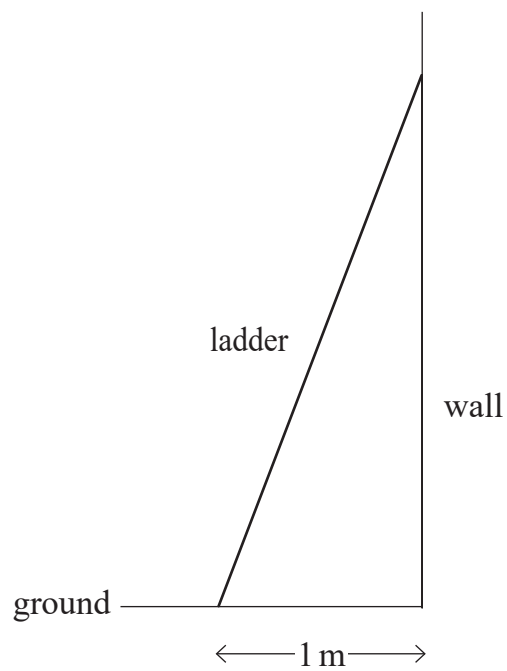


diagram not drawn accurately

A ladder is 4 metres long.

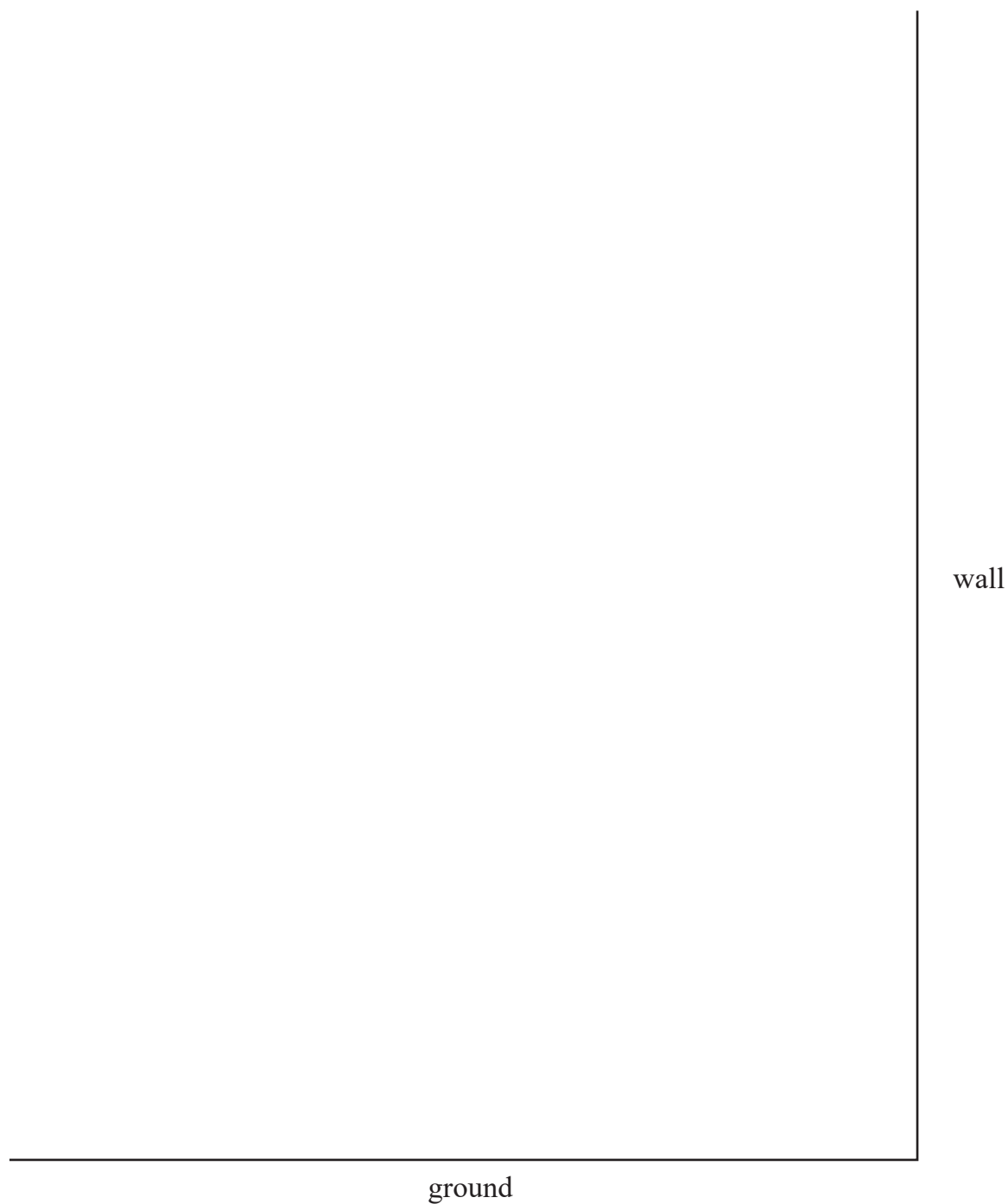
The bottom of the ladder is 1 metre from a vertical wall.

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Use a scale drawing, with 4 cm : 1 m, to find the height of the top of the ladder above the ground.



Answer \_\_\_\_\_ m [3]

[Turn over



5



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It takes 2 days to paint the outside of 6 houses.

(a) How long would it take to paint the outside of 15 houses?

Answer \_\_\_\_\_ days [2]

(b) State one assumption you made in answering part (a).

Answer \_\_\_\_\_  
\_\_\_\_\_ [1]



6 Here are some numbers.

12	8	29
18	30	46
49	2	21

From the numbers given, write down

(a) the square number,

Answer \_\_\_\_\_ [1]

(b) the cube number,

Answer \_\_\_\_\_ [1]

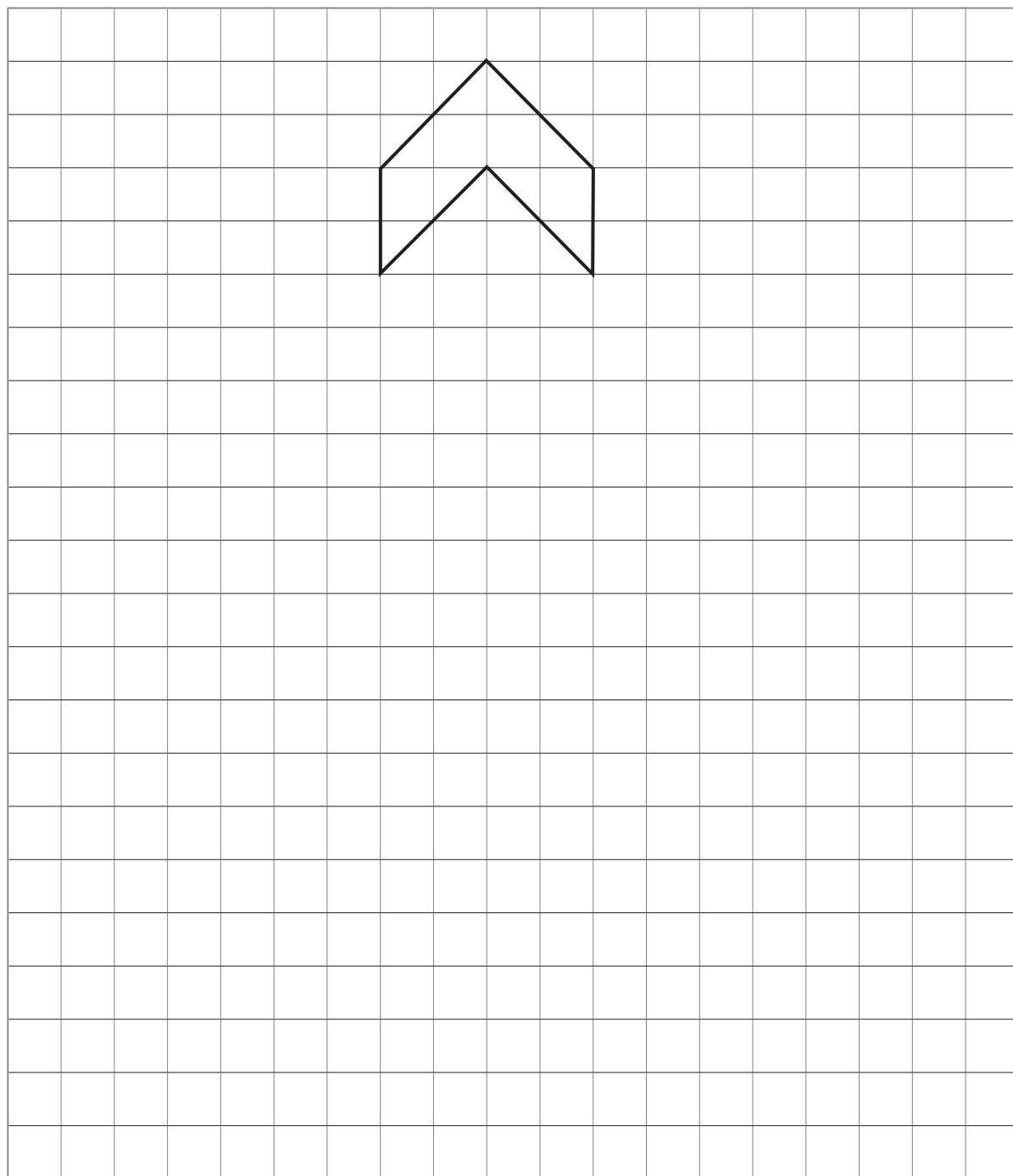
(c) the triangular number.

Answer \_\_\_\_\_ [1]

[Turn over



7 Enlarge the shape on the grid below using a **scale factor of 3**



[3]



8 Conor mixes red, blue and yellow paint in the ratio 4 : 2 : 1

He uses 10 litres of blue paint.

He sells the mixed paint at a price of £18.25 per litre.

Work out the total price of the mixed paint.

Answer £ \_\_\_\_\_ [3]

[Turn over





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A firm holds a Christmas raffle for its 20 employees.

The raffle tickets are numbered from 1 to 20

A ticket is drawn at random from a hat.

What is the probability that the ticket drawn is

(a) a number less than 10,

Answer \_\_\_\_\_ [1]

(b) a number more than 14,

Answer \_\_\_\_\_ [1]

(c) a prime number?

Answer \_\_\_\_\_ [1]



10 Julie collects 50 p coins.

70 of these coins weigh 560 g.

What is the **value** of 880 g of these coins?

Answer £ \_\_\_\_\_ [3]

[Turn over



11 Ben and Orla share the cost of a meal in the ratio 3 : 1

The meal costs £64

Ben then pays the taxi fare.

Ben pays a total of £60

How much is the taxi fare?

Answer £ \_\_\_\_\_ [3]



12 Data is recorded about the age and treatment received by patients who visit a dentist on a Monday.

	Patients aged 30 or under	Patients aged over 30
Filling	9	6
Extraction	5	13

(a) What is the probability that one of these patients selected at random is over 30 and has an extraction?

Answer \_\_\_\_\_ [1]

(b) One of the patients aged 30 or under is selected at random.

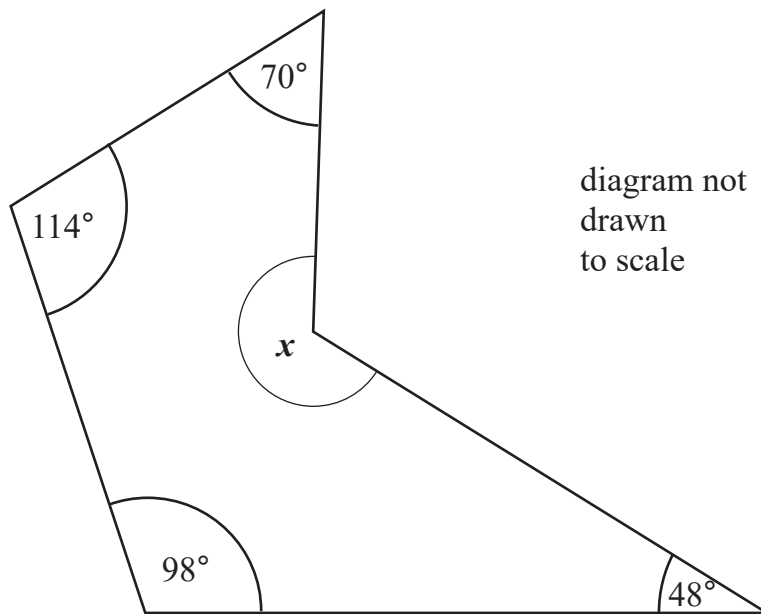
What is the probability that this patient has a filling?

Answer \_\_\_\_\_ [1]

[Turn over



13 A sketch of an irregular pentagon is shown.



Calculate the value of  $x$ .

Show all your working.

Answer \_\_\_\_\_  $^\circ$  [3]



14 Simplify  $(x^5)^3$

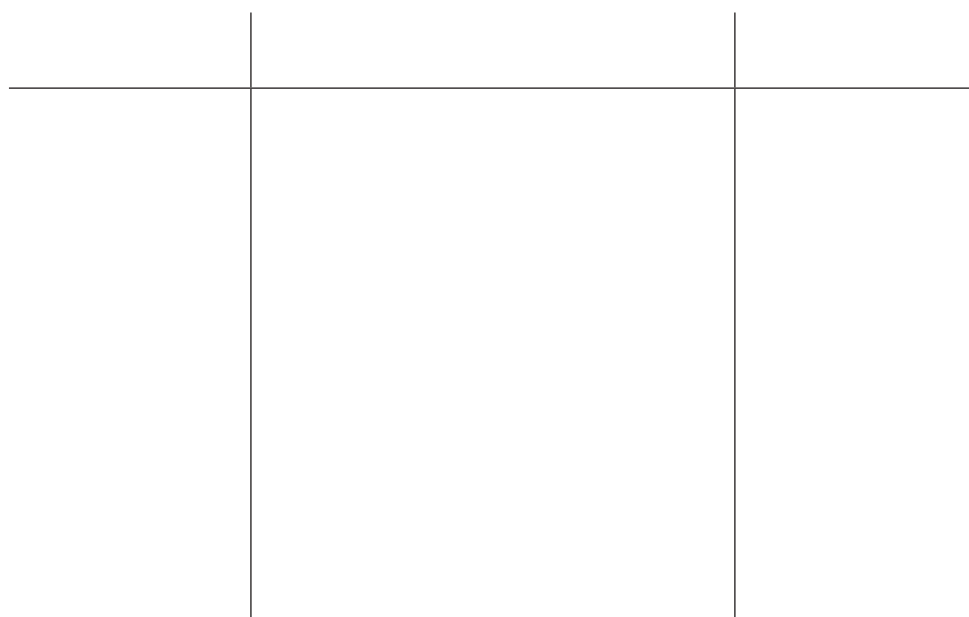
Answer \_\_\_\_\_ [1]

15 Use trial and improvement to find a solution of the equation

$$x^2 + \frac{x}{2} = 15$$

Give your answer correct to 1 decimal place.

**You must show all your working.**



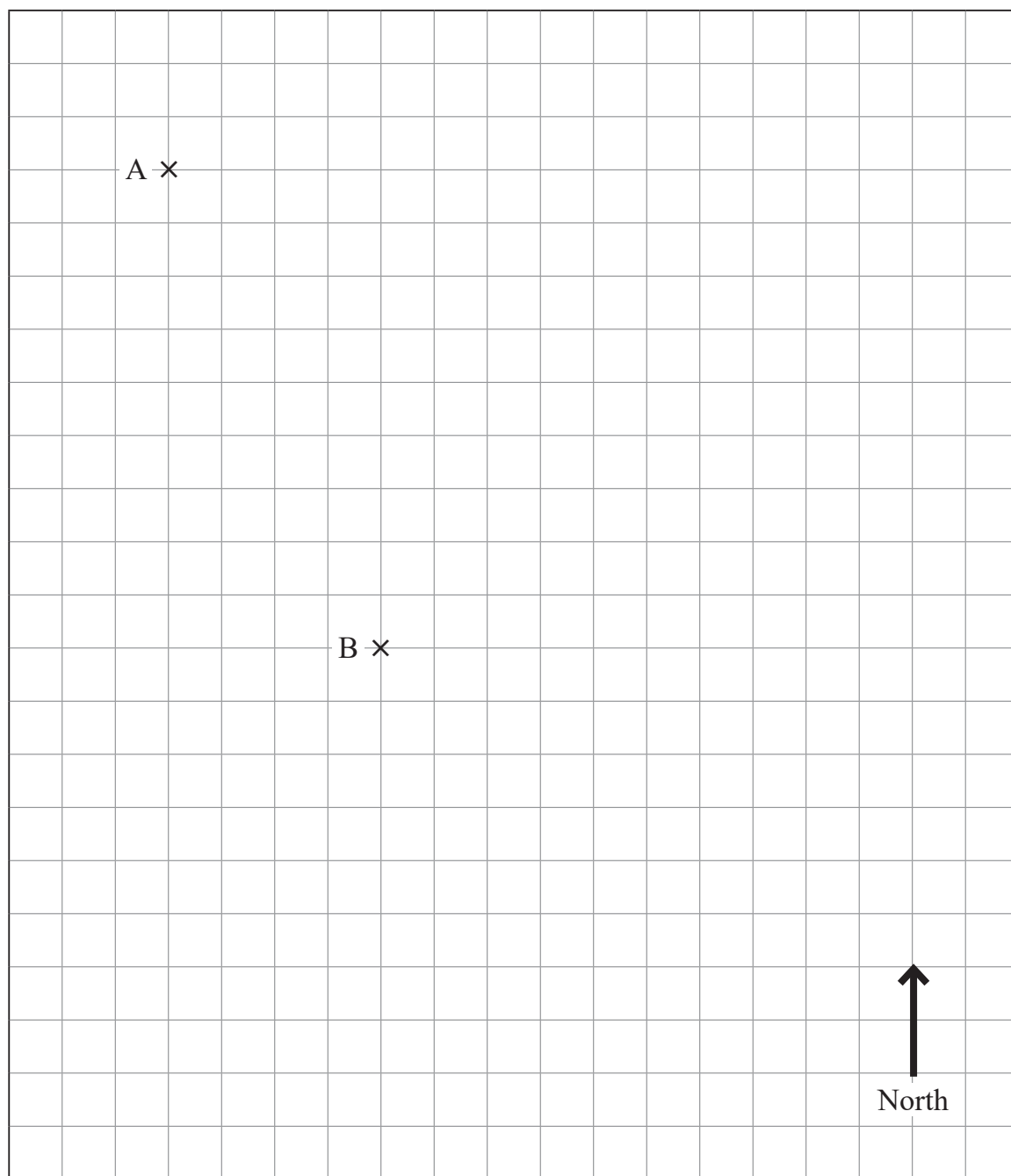
Answer  $x =$  \_\_\_\_\_ [4]



16 The position of two Airport Control Towers, A and B, are shown.

(a) What is the bearing of B from A?

Answer \_\_\_\_\_ ° [1]



(b) The two towers pick up a distress signal from a plane.

The bearing of the plane from A is  $110^\circ$

The bearing of the plane from B is  $050^\circ$

Find and mark the position of the plane with a P on the diagram.

[2]

[Turn over

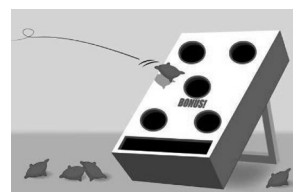
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17 Kate plays the game “throw the bean bag”.

She records the number of times she gets the bean bag in the bonus hole.



<b>Total number of throws</b>	10	30	100	200
<b>Total number of times in the bonus hole</b>	2	8	49	104

- (a) Write down the best estimate of the probability that Kate gets the bean bag in the bonus hole if she continues throwing.

Give a reason for your answer.

Answer \_\_\_\_\_

because \_\_\_\_\_

\_\_\_\_\_ [2]

- (b) Kate continues with her game and throws it a total of 300 times.

Calculate the number of times you would expect her to get the bean bag in the bonus hole.

Answer \_\_\_\_\_ [2]





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Question Number	Marks
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<b>Total Marks</b>	
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Examiner Number

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