St. Anselm's College

Entrance Exam

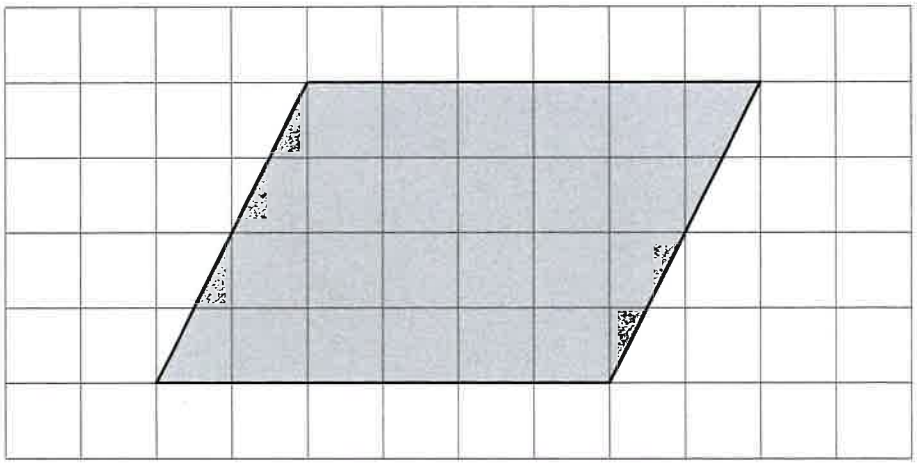
Maths Sample Questions

This document shows a range of sample questions to help you prepare for the Entrance Exam

The Maths Entrance Exam will be 45 minutes

Calculators are NOT allowed

Look at the shaded shape drawn on the square grid.



For each statement below, tick (✓) True or False.

	True	False
The shape is a quadrilateral.	☐	☐
The shape is a square.	☐	☐
The shape has one line of symmetry.	☐	☐
The shape has no right angles.	☐	☐

2 marks

People who have been married for many years have special anniversaries.

Number of years they have been married	Special anniversary
25 years	Silver
50 years	Golden
60 years	Diamond

(a) Betty and Stan were **married** in **1952**.

In what year was their **golden** anniversary?



_____

1 mark

(b) Lyn and Chris had their **silver** anniversary in **1985**.

In what year were they **married**?



_____

1 mark

(c) Jean and Peter had their **diamond** anniversary in **1997**.

In what year was their **golden** anniversary?



_____

1 mark

(b) A woman has **four notes**.

The notes total **one thousand** euros.

What notes does she have?

Write the value of each one.



_____ euros

_____ euros

_____ euros

_____ euros

1 mark

Work out the following.

1706 + 185



1 mark

576 − 83



1 mark

65 × 9



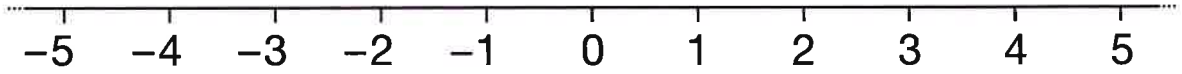
1 mark

154 ÷ 7



1 mark

Here is a number line.



It can help you work out the answers to the calculations below.

The first one is done for you.

$-3 + 1 = \underline{-2}$

$-4 + 1 = \underline{\quad}$ 1 mark

$-2 + 5 = \underline{\quad}$ 1 mark

$3 - 5 = \underline{\quad}$ 1 mark

Write the missing numbers in the boxes.

$8 \times \square = 800$

1 mark

$0.8 \times \square = 8$

1 mark

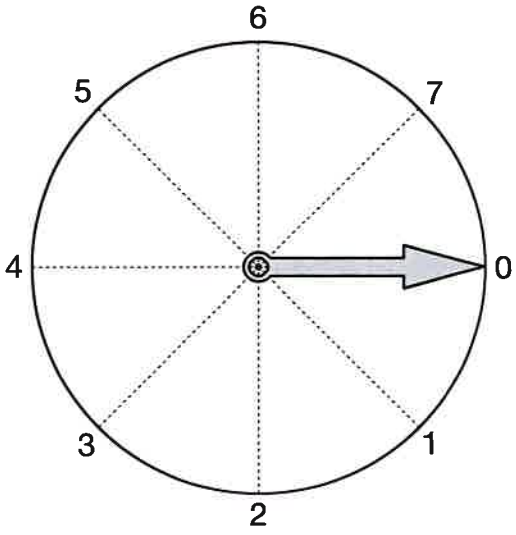
12. Look at the calculation below.

Write the correct digits in the boxes.

4	3		+	2		8	=		7	5

2 marks

Look at the dial.



The pointer starts at 0 and turns **clockwise** around the centre.

(a) Which number does it point to after turning clockwise through **90°** ?

_____

1 mark

(b) The pointer turns clockwise from **3 to 6**

Through how many degrees does it turn?

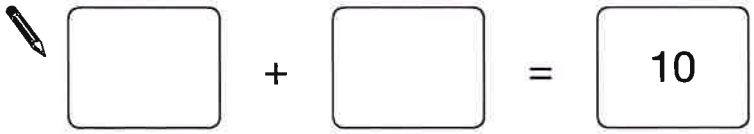
_____ °

1 mark

Write two numbers that add to 10

One of the numbers must be **positive**.

The other number must be **negative**.



1 mark

18. Work out the following.

1.2×6



1 mark

$1.2 \div 6$



1 mark

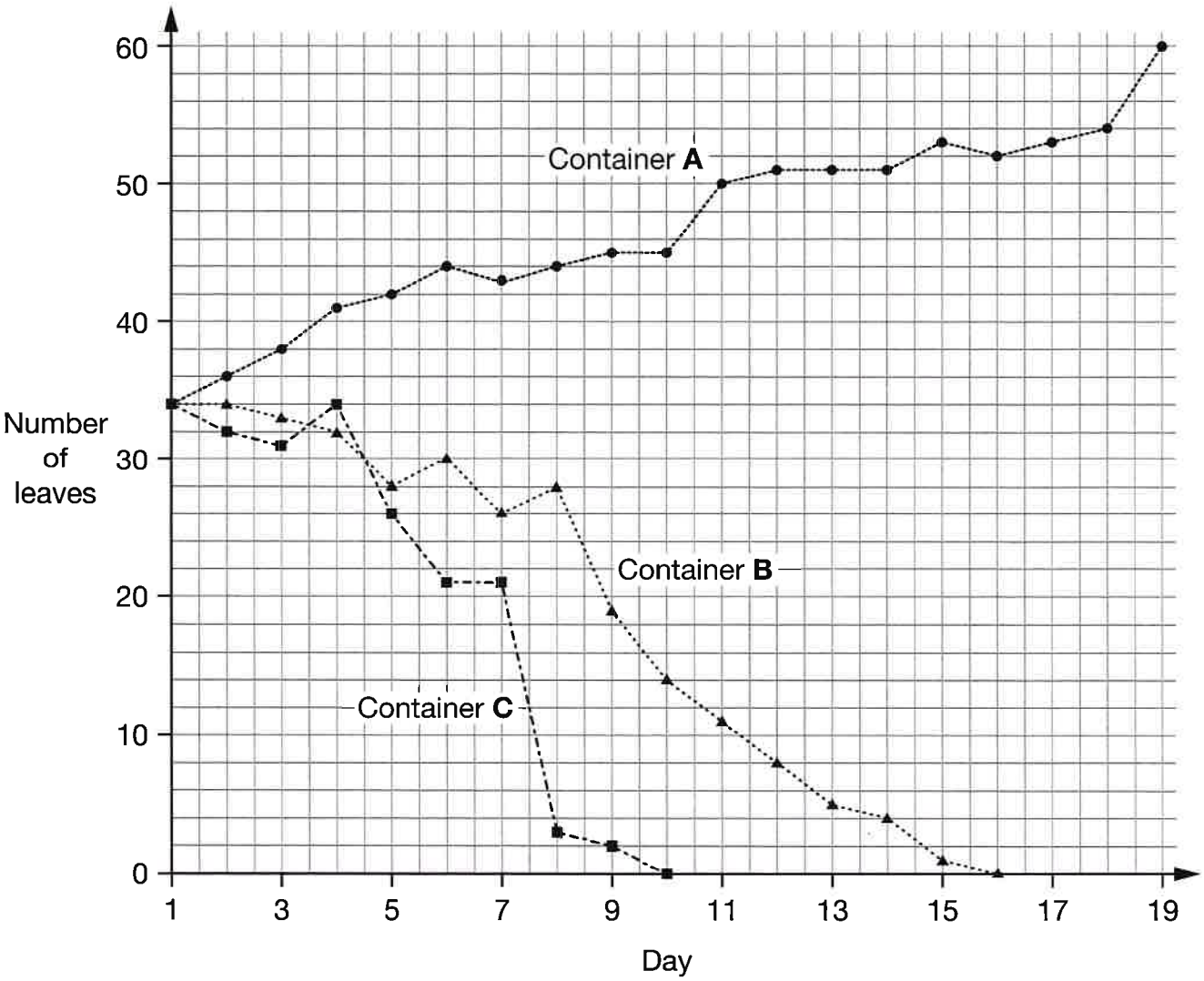
Duckweed is a plant that grows in water.

Pupils added **different amounts of salt** to three identical containers of water.

In each container they put some duckweed plants.

Then they recorded the number of leaves on the plants every day.

Results:



Key:

A: No salt

B: Small amount of salt

C: Large amount of salt

(a) How many leaves were in each container on day **1**?



_____

1 mark

(b) In container **A**, how many **more** leaves were there on day **19** than on day **1**?



_____

1 mark

(c) Duckweed plants with no leaves are dead.

On which day did the pupils record that the plants in container **B** were dead?



Day _____

1 mark

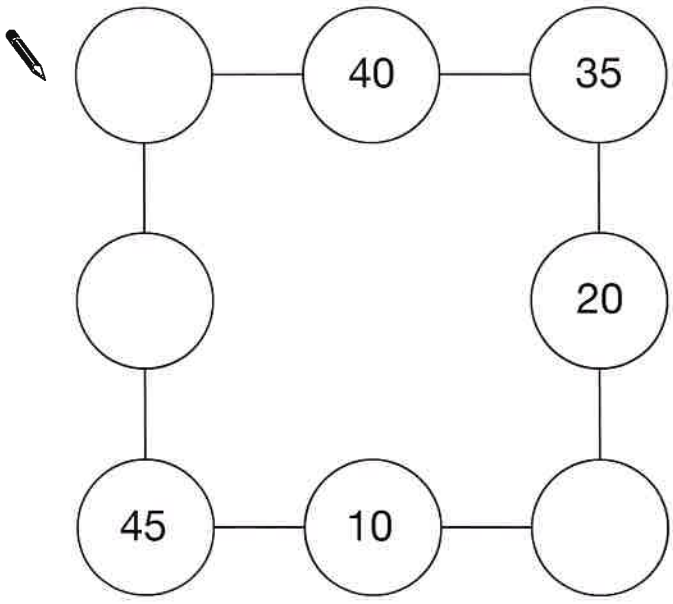
(d) How did the amount of salt affect the **change** in the number of leaves?



1 mark

In the diagram, three circles in a straight line must **add up to 100**

Write in the missing numbers.



2 marks

(a) Write the correct numbers in the gaps below.

$1 \times 3\frac{1}{2} = 3\frac{1}{2}$

$2 \times 3\frac{1}{2} = 7$

$3 \times 3\frac{1}{2} = 10\frac{1}{2}$

$4 \times 3\frac{1}{2} =$ _____ 1 mark

$5 \times 3\frac{1}{2} =$ _____ 1 mark

$6 \times 3\frac{1}{2} = 21$

Use the table to help you work out this calculation.

$60 \times 3\frac{1}{2} =$ _____ 1 mark

In a restaurant, the colour of each dish shows how much the food in it costs.

The table shows the different colours and costs.

Colour of dish	Cost
Green	£1.50
Blue	£2.00
Red	£2.50
Orange	£3.00
Pink	£3.50

(a) Meera pays for **two blue** dishes and **two pink** dishes.

Altogether, how much did they cost?

£

1 mark

(b) Victor pays for one **green**, one **red** and one **pink** dish.

He pays with a **£10 note**.

How much change should he get?

£

2 marks

(c) Rachel pays for **two dishes** that cost **exactly £4.50** altogether.

What colours could her dishes be?

There are two possible answers. Write them both.



colours: _____ and _____

1 mark

or colours: _____ and _____

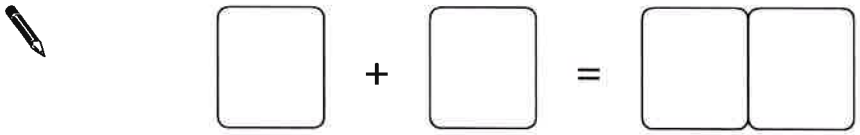
1 mark

Look at the digit cards numbered from 1 to 9

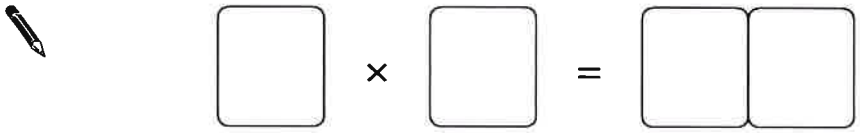


Use the digit cards to complete the calculations below.

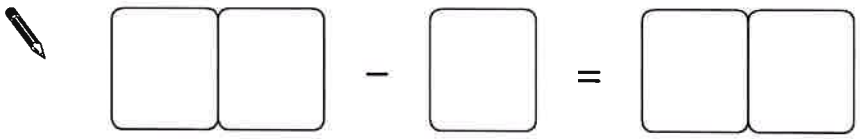
You can use each card more than once.



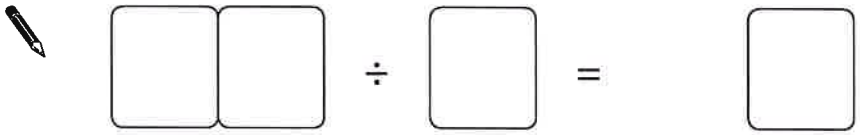
1 mark



1 mark



1 mark



1 mark

(a) Kate has **one 10p** coin, **one 50p** coin and some 20p coins.

Altogether she has **£1.20**

How many **20p** coins does she have?

1 mark

(b) Show the different ways of making **£1.60** using **two 50p coins**, and 20p and 10p coins.

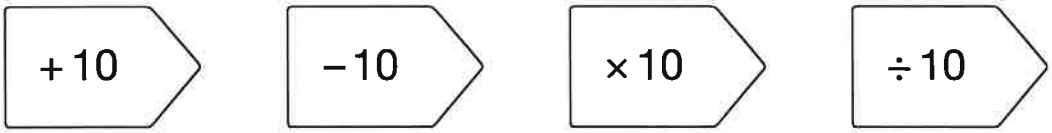
The first way is done for you.

	Number of 50p coins	Number of 20p coins	Number of 10p coins
First way:	2	3	0
Second way:	2		
Third way:	2		
Fourth way:	2		

2 marks

Fill in the boxes to complete each number chain.

Use any of the following:



450 → ☐ → 45

1 mark

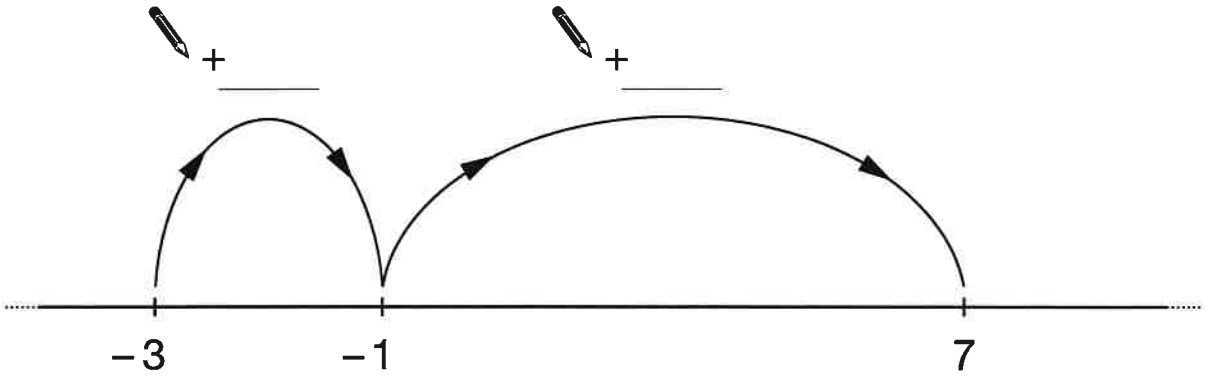
450 → ☐ → ☐ → 35

1 mark

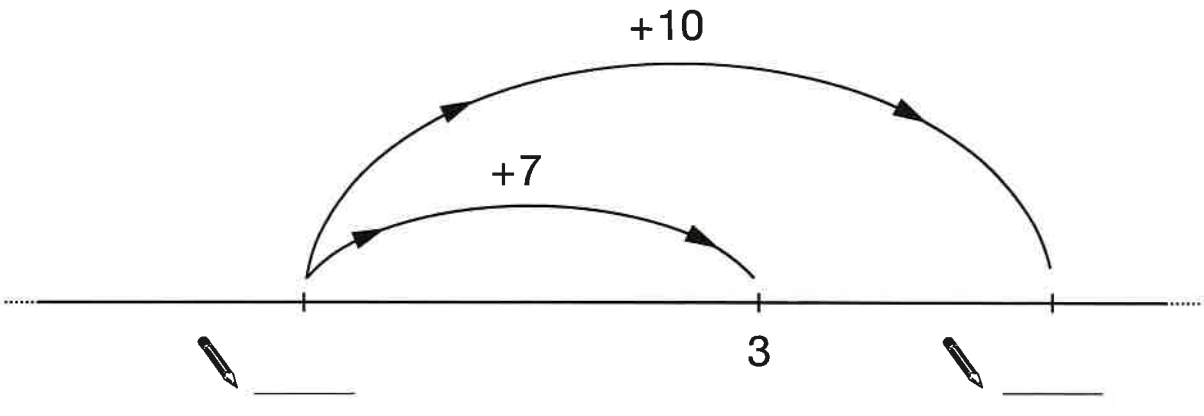
450 → ☐ → ☐ → 46

1 mark

Write in the missing numbers.



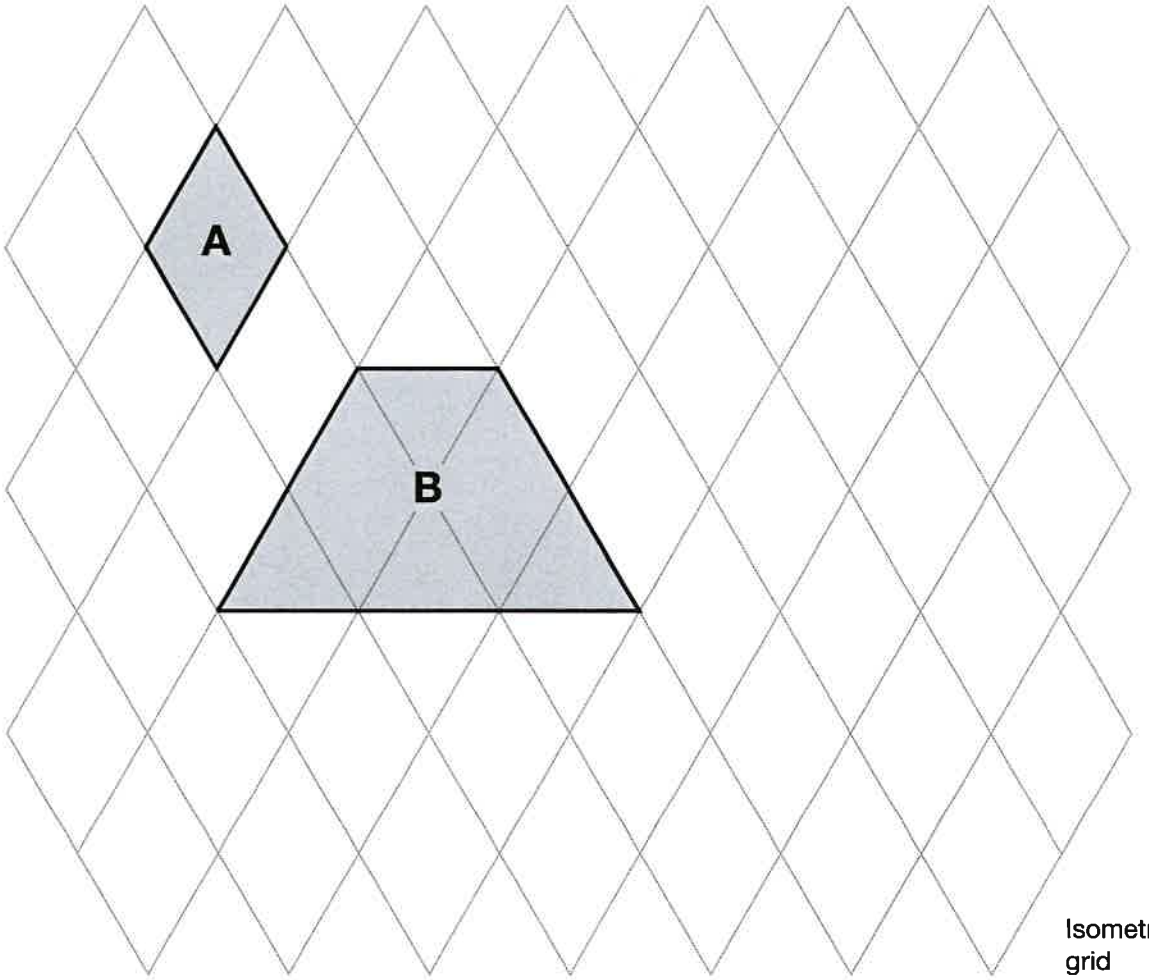
1 mark



1 mark

1 mark

Look at the shaded shapes.



Isometric grid

(a) The area of shape **A** is **3 cm²**

What is the area of shape **B**?

_____ cm²

1 mark

(b) On the grid, draw a **triangle** that has an area of **6 cm²**

1 mark

Write the missing digits in each calculation below.

The first one is done for you.

1	9	×	3	=	5	7
		×	3	=	5	1
		×	3	=	4	

1 mark

1 mark

(a) A number chain starts

$1 \longrightarrow 2 \longrightarrow 5 \longrightarrow \ldots$

To find the next number you use the rule **× 3 then − 1**

Write the next two numbers in the number chain.

$1 \longrightarrow 2 \longrightarrow 5 \longrightarrow ____ \longrightarrow ____$

1 mark

(b) Here is a different number chain.

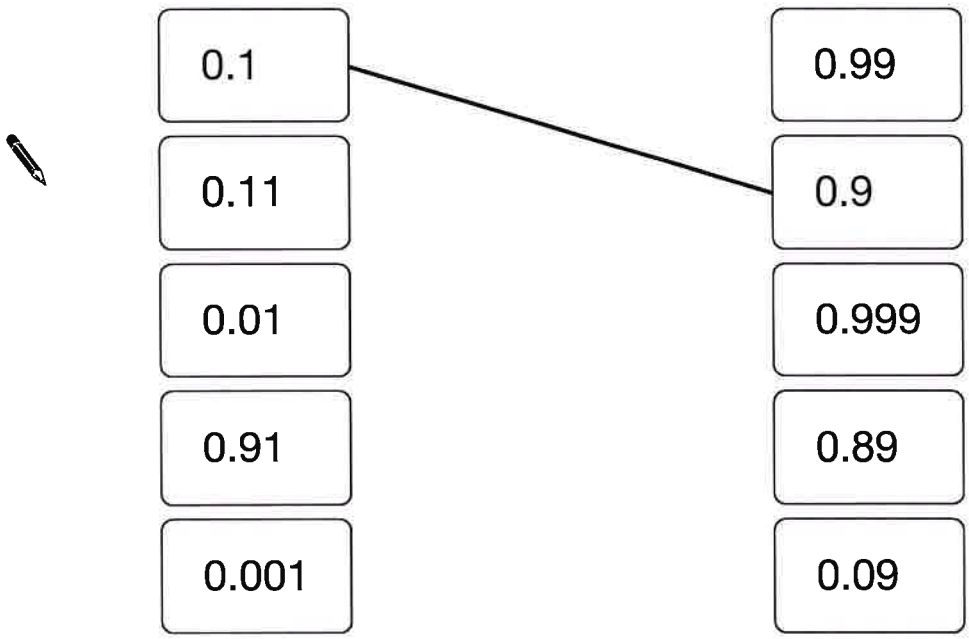
$3 \longrightarrow 9 \longrightarrow 27 \longrightarrow 81 \longrightarrow \ldots$

What could the **rule** be to find the next number?

1 mark

(a) Join all the pairs of numbers that **add** together to equal **1**

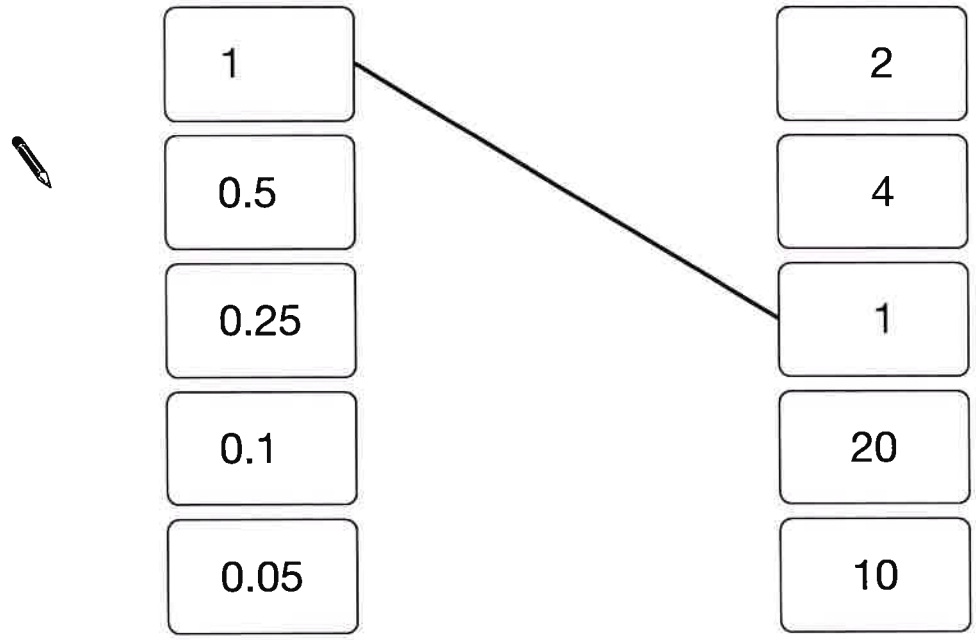
The first one is done for you.



2 marks

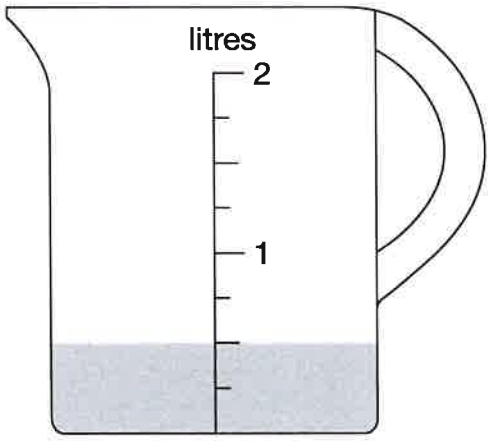
(b) Now join all the pairs of numbers that **multiply** to equal **1**

The first one is done for you.



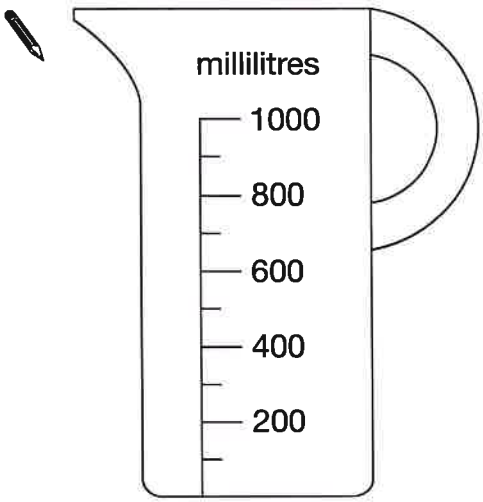
2 marks

Zak has some water in a jug.



He pours this water into the jug below.

Draw the correct level of the water on the jug.

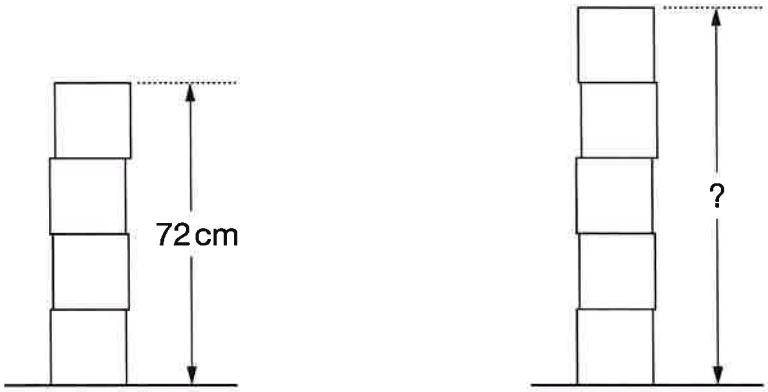


1 mark

Lisa has some boxes that are all cubes of the same size.

She uses four of the boxes to make a pile with a height of **72cm**.

She puts one more box on top of the pile.



Work out the height of the pile of **five** boxes.

_____ cm

2 marks

. (a) Work out **5%** of **360**



1 mark

(b) Work out **15%** of **360**

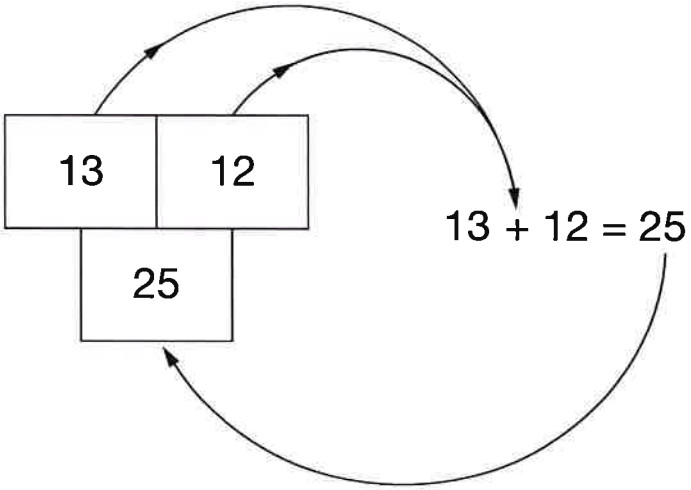
You can use part (a) to help you.



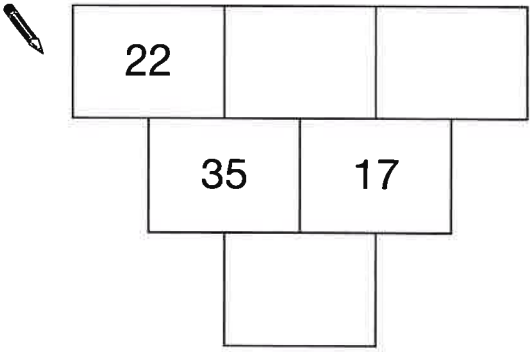
1 mark

In these number grids, two numbers are added to give the number below.

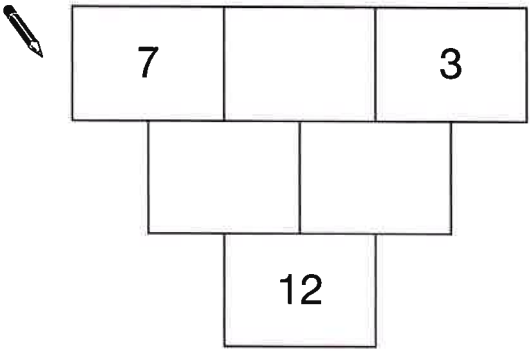
Example:



Write numbers in the number grids below to make them correct.



1 mark



1 mark

Use **+**, **−**, **×** or **÷** to make each calculation correct.

Examples:

2 **+** 4 = 7 **−** 1

5 **×** 3 = 3 **×** 5



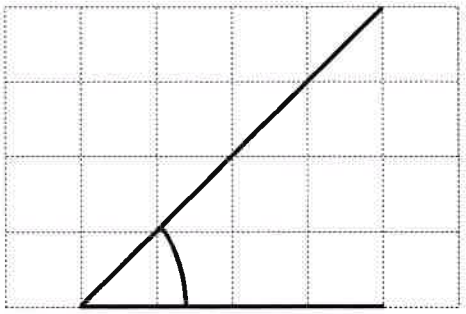
5 ..... 2 = 10 ..... 3 1 mark

12 ..... 3 = 3 ..... 3 1 mark

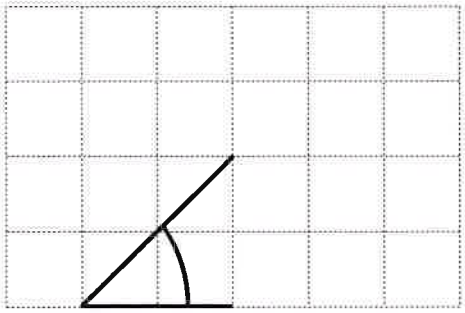
2 ..... 1 = 9 ..... 3 1 mark

6 ..... 6 = 7 ..... 7 1 mark

Two pupils drew angles on square grids.



Angle **A**



Angle **B**

(a) Which word below describes angle **A**?

Tick (✓) the correct box.

acute	☐
obtuse	☐
right-angled	☐
reflex	☐

1 mark

(b) Is angle **A bigger** than angle **B**?

Tick (✓) Yes or No.

Yes ☐ No ☐

Explain your answer.

1 mark

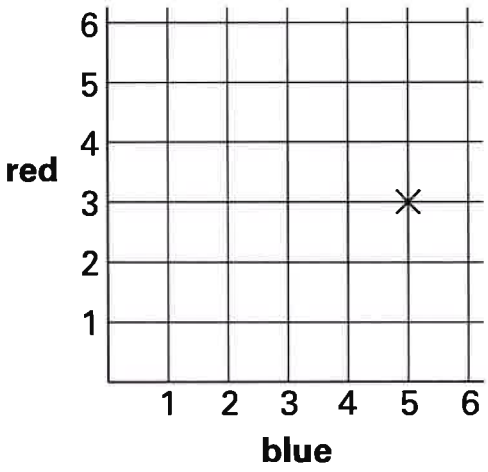
Some pupils throw two fair six-sided dice. Each dice is numbered 1 to 6

One dice is blue. The other dice is red.

Anna's dice show **blue 5, red 3**

Her **total score** is **8**

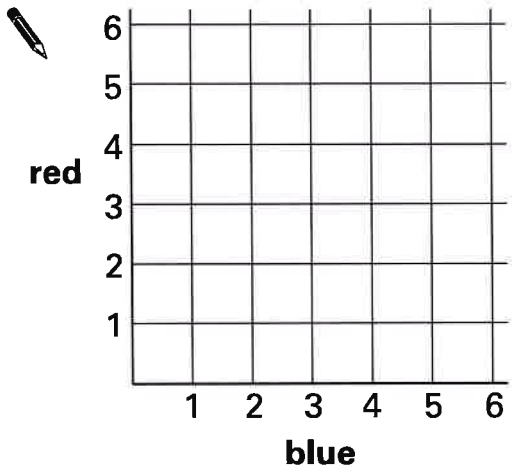
The cross on the grid shows her throw.



(a) Carl's **total score** is **6**

What numbers could Carl's dice show?

Put crosses on the grid to show **all** the different pairs of numbers Carl's dice could show.

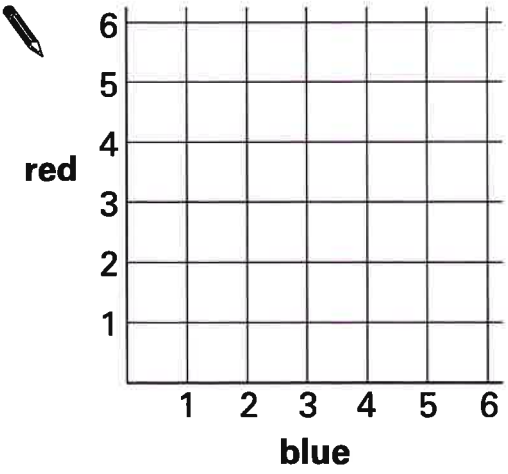


2 marks

(b) The pupils play a game.

Winning rule:	Win a point if the number on the **blue** dice is the **same as** the number on the **red** dice.

Put crosses on the grid to show **all** the different winning throws.



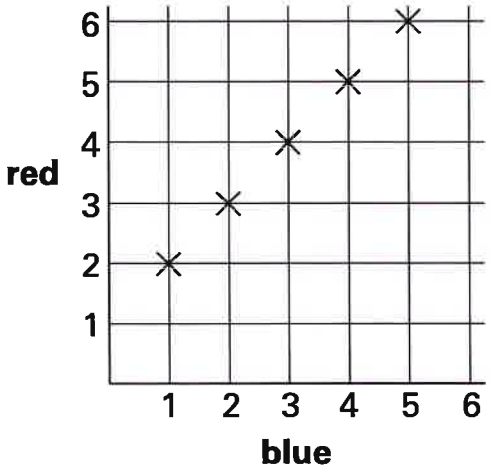
. . . . .

. . . . .

2 marks

(c) The pupils play a different game.

The grid shows all the different winning throws.



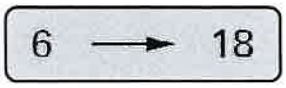
Complete the sentence below to show the winning rule.

Winning rule:	Win a point if the number on the **blue** dice is .....

. . . . .

1 mark

(a) I can think of three different rules to change **6** to **18**



Complete these sentences to show what these rules could be.

first rule: **add** ..... 1 mark

second rule: **multiply by** ..... 1 mark

third rule: **multiply by 2 then** ..... 1 mark

(b) Now I think of a new rule.

The new rule changes 10 to 5 **and** it changes 8 to 4

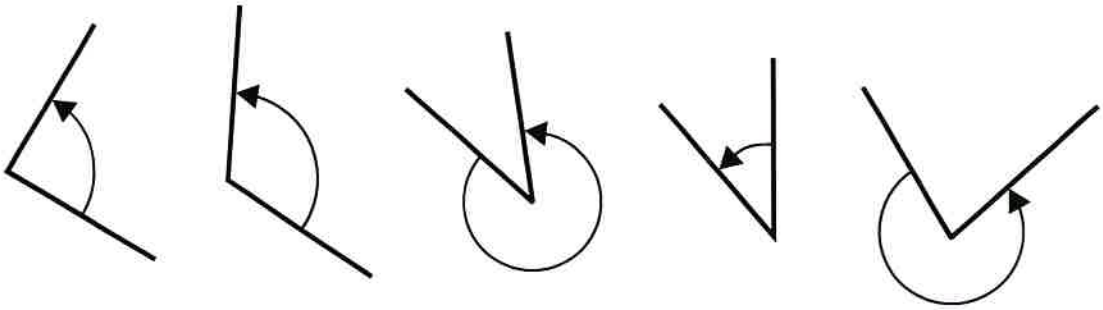




Write what the new rule could be.

..... 1 mark

Look at these angles.



angle P angle Q angle R angle S angle T

(a) One of the angles measures **120°**

Write its letter.

. . . . . .

. . . .
1 mark

(b) Complete the drawing below to show an angle of **157°**

Label the angle 157°

. . . .

. . . .
2 marks

(a) Write the answers.



$(4 + 2) \times 3 =$ . . . . . .

$4 + (2 \times 3) =$ . . . . . .

. . . .
1 mark

(b) Work out the answer to

$(2 + 4) \times (6 + 3 + 1)$



. . . . . .

. . . .
1 mark

(c) Put brackets in the calculation to make the answer **50**



$4 + 5 + 1 \times 5$

. . . .
1 mark

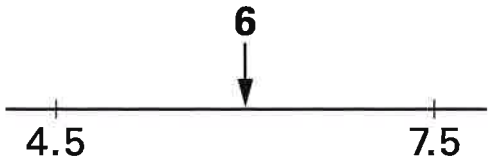
(d) Now put brackets in the calculation to make the answer **34**



$4 + 5 + 1 \times 5$

. . . .
1 mark

(a) The number 6 is halfway between 4.5 and 7.5



Fill in the missing numbers below.

The number 6 is halfway between **2.8** and .....

1 mark

The number 6 is halfway between **−12** and .....

1 mark

(b) Work out the number that is halfway between **27 × 38** and **33 × 38**
Show your working.

.....

2 marks

The table shows some percentages of amounts of money.

	£10	£30	£45
5%	50p	£1.50	£2.25
10%	£1	£3	£4.50

You can use the table to help you work out the missing numbers.



15% of £30 = £ . . . .

1 mark

£6.75 = 15% of £ . . . .

1 mark

£3.50 = ... % of £10 . . . .

1 mark

25p = 5% of £ . . . .

1 mark

Hakan asked 30 pupils which subject they liked best.

Subject	Number of boys	Number of girls
Maths	4	7
English	2	4
Science	3	3
History	0	1
French	1	5
	total 10	**total 20**

(a) Which subject did **20%** of **boys** choose?



.....

1 mark

(b) Which subject did **35%** of **girls** choose?



.....

1 mark

(c) Hakan said:

'In my survey, **Science** was equally popular with boys and girls'.

Explain why Hakan was **wrong**.



1 mark

(d) Which subject **was** equally popular with boys and girls?



.....

1 mark

(a) Two numbers **multiply** together to make **–15**
They **add** together to make **2**

What are the two numbers?



. . . . . and . . . . . .

1 mark

(b) Two numbers **multiply** together to make **–15**,
but **add** together to make **–2**

What are the two numbers?



. . . . . and . . . . . .

1 mark

(c) Two numbers **multiply** together to make **8**,
but **add** together to make **– 6**

What are the two numbers?



. . . . . and . . . . . .

1 mark

(d) The square of 5 is 25
The square of **another** number is also 25

What is that other number?

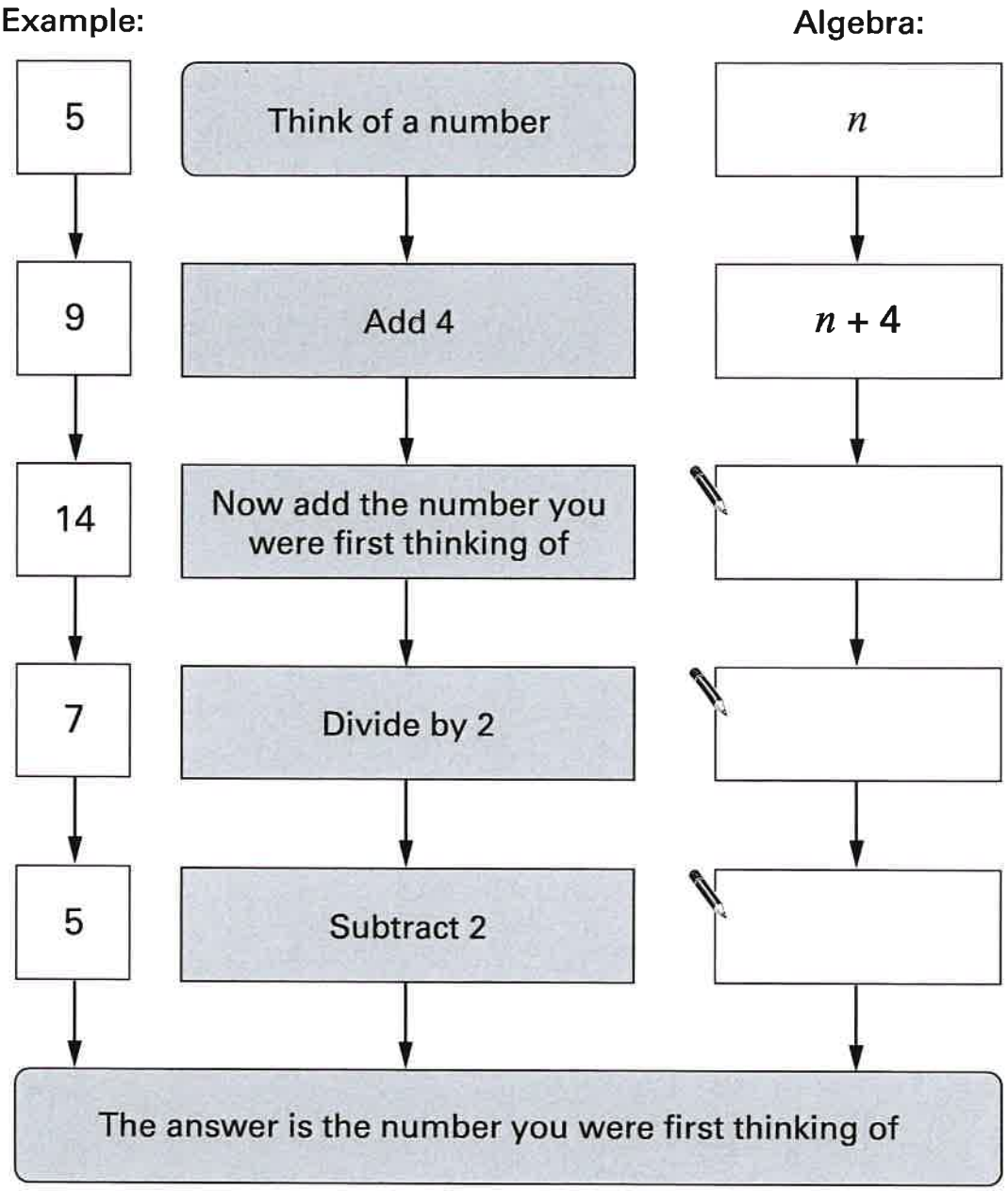


. . . . . .

1 mark

You can often use algebra to show why a number puzzle works.

Fill in the missing expressions.

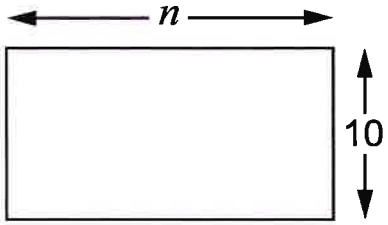


. . . .

2 marks

Jenny and Alan each have a rectangle made out of paper.

One side is 10cm.
The other side is n cm.



(a) They write expressions for the **perimeter** of the rectangle.

Jenny writes $2n + 20$

Alan writes $2(n + 10)$

Tick (✓) the true statement below.

Jenny is correct and Alan is wrong. ☐

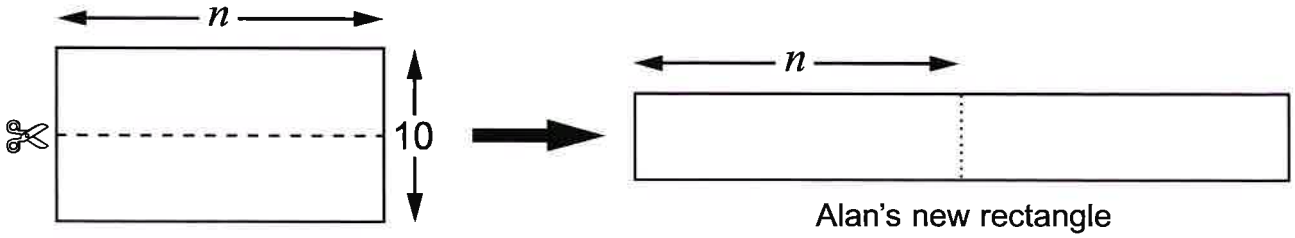
Jenny is wrong and Alan is correct. ☐

Both Jenny and Alan are correct. ☐

Both Jenny and Alan are wrong. ☐

1 mark

(b) Alan cuts his rectangle, then puts the two halves side by side.



Alan's new rectangle

What is the perimeter of Alan's new rectangle?
Write your expression as simply as possible.

2 marks