Ma

YEAR 7

LEVELS 4–6

PAPER 1

Year 7 mathematics test

Paper 1

Calculator **not** allowed

Please read this page, but do not open your booklet until your teacher tells you to start. Write your details in the spaces below.

First name _____

Last name _____

Class _____

Date _____

Remember

- The test is 1 hour long.
- You **must not** use a calculator for any question in this test.
- You will need: pen, pencil, rubber, ruler and tracing paper (optional).
- Some formulae you might need are on page 2.
- This test starts with easier questions.
- Try to answer all the questions.
- Write all your answers and working on the test paper – do not use any rough paper. Marks may be awarded for working.
- Check your work carefully.
- Ask your teacher if you are not sure what to do.

For marking use only

Total marks	

Instructions

Answers

This means write down your answer or show your working and write down your answer.

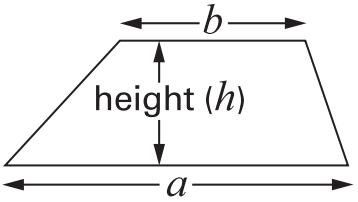
Calculators

You **must not** use a calculator to answer any question in this test.

Formulae

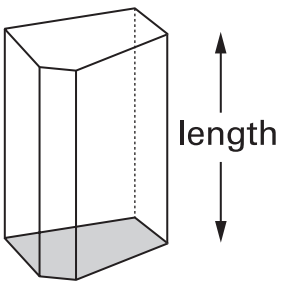
You might need to use these formulae.

Trapezium



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

Prism



Volume = area of cross-section × length

1 The ancient Egyptians used pictures to show numbers.

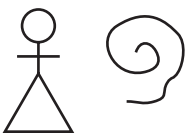
The table gives some of these pictures.

Number	Picture
one	
ten	
one hundred	
one thousand	

Write **in figures** the number that each picture below is showing.

The first one is done for you.

12



.....

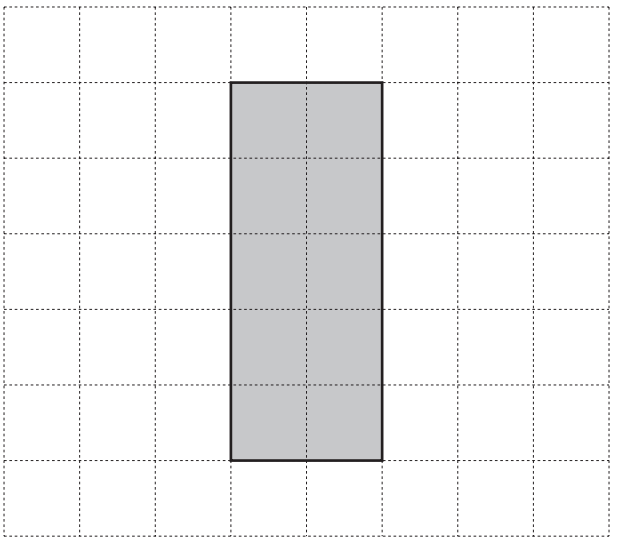
1 mark

.....

1 mark

2 The grids in this question are centimetre square grids.

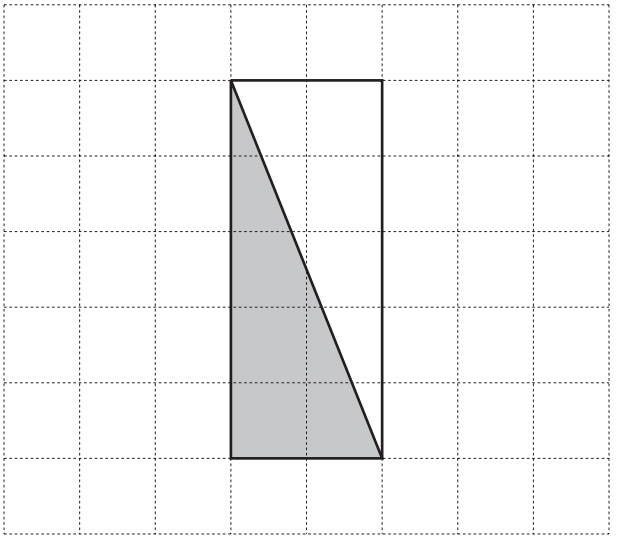
(a) What is the **area** of this shaded rectangle?



..... cm^2

1 mark

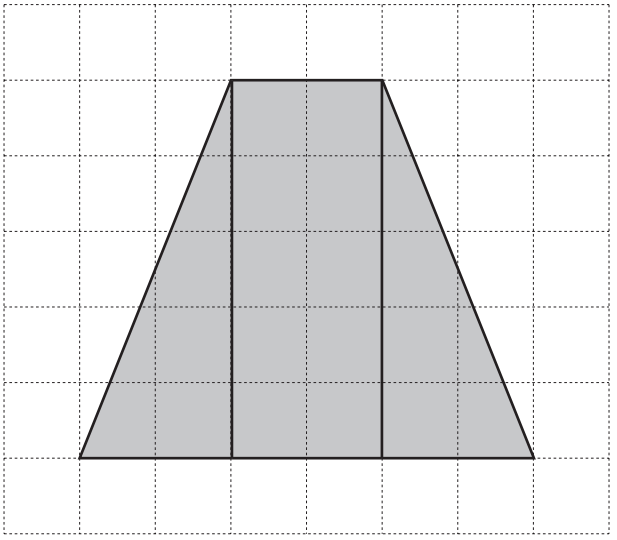
(b) What is the **area** of this shaded triangle?



..... cm^2

1 mark

(c) What is the **area** of this shaded trapezium?

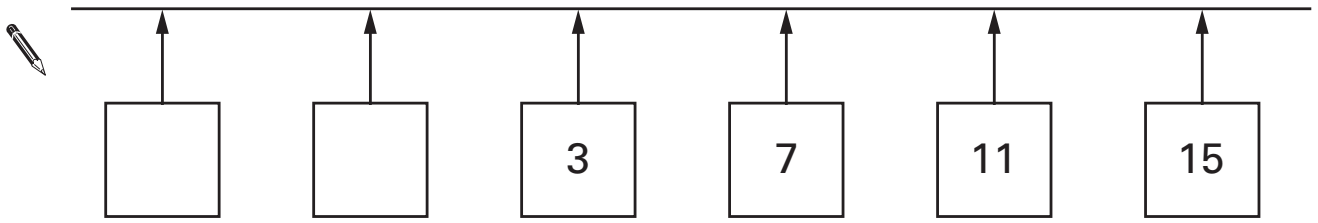


..... cm^2

1 mark

3 The number line below goes up in **equal steps**.

Fill in the missing numbers.

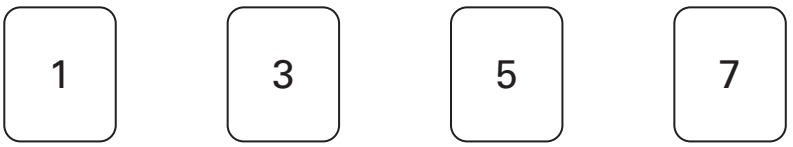


. . . .

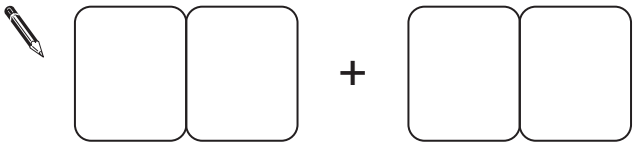
. . . .

2 marks

4 Look at these four digit cards.



Use the four digit cards to make the answer to the calculation as **small** as possible.

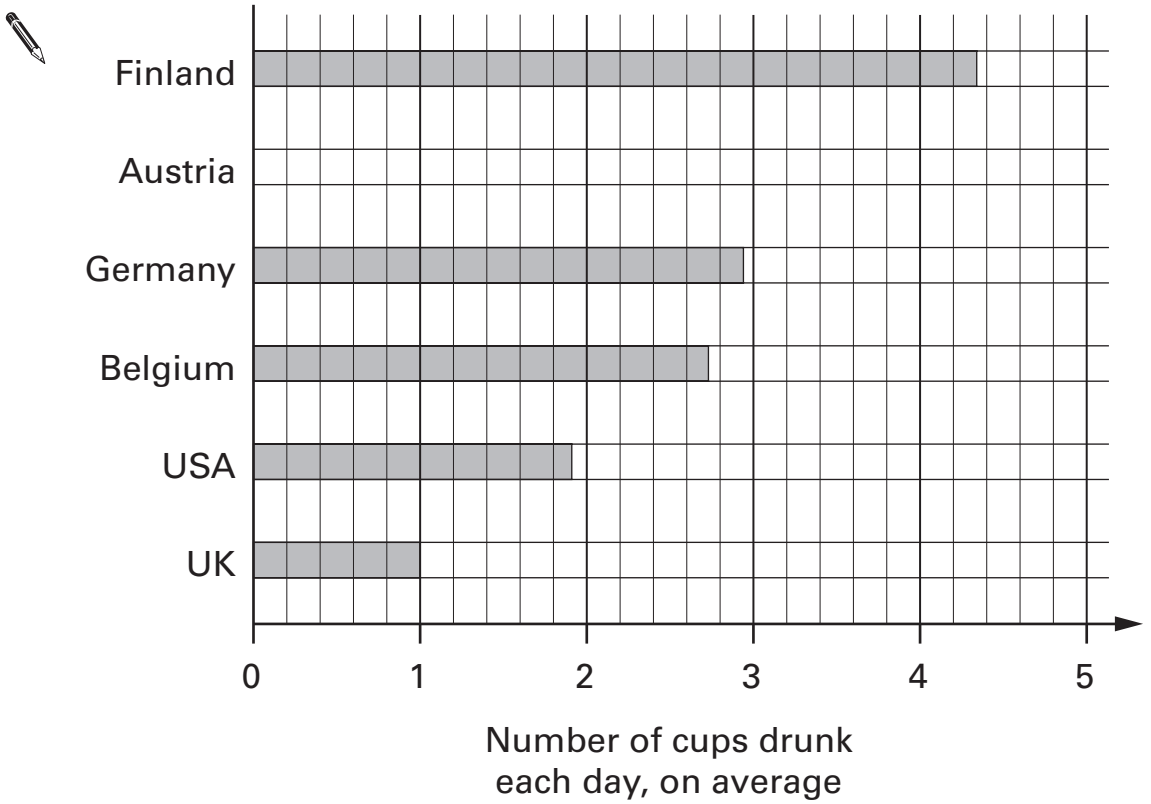


. . . .

1 mark

5 People in some countries drink a lot of coffee.

The chart shows how much coffee a person drinks each day, on average.



(a) In which country does a person drink about **1.9** cups each day, on average?

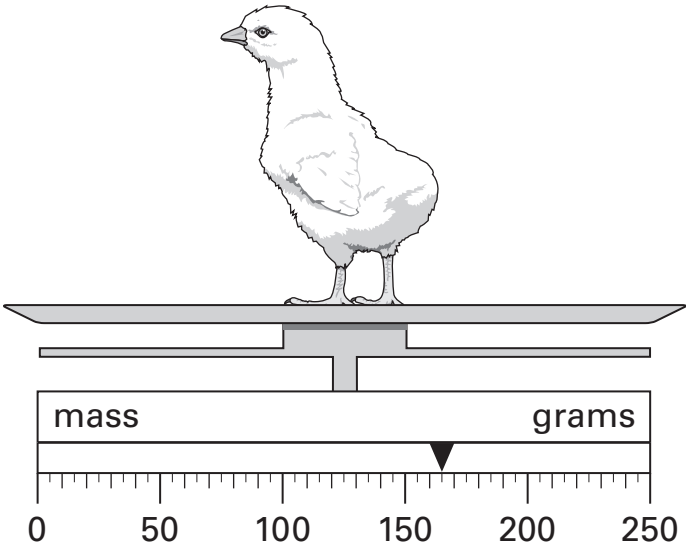
..... 1 mark

(b) In **Austria**, a person drinks **3.2** cups each day, on average.

Complete the chart to show this information. 1 mark

6 (a) Look at the scales.

What is the mass of the chick?

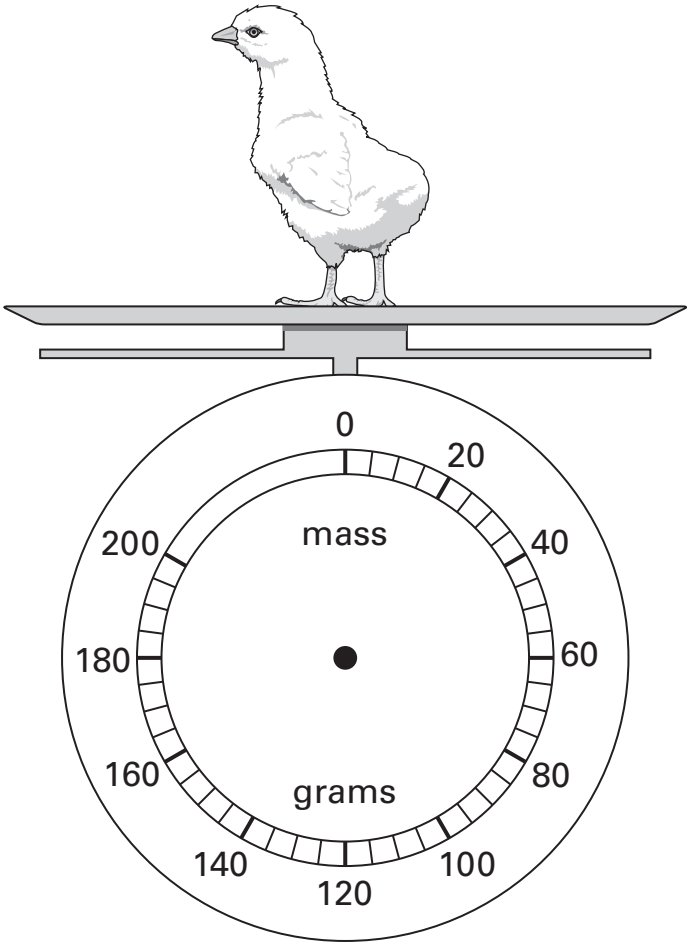


..... grams

1 mark

(b) The diagram below shows the **same chick** on different scales.

Draw an arrow to show the mass of the chick.



1 mark

7 Here is the cost of tickets to see a pantomime.

Adults	£3.50
Children	£2.50

(a) How many tickets for **adults** can you buy with **£35**?

. . . . . 1 mark

(b) How many tickets for **children** can you buy with **£20**?

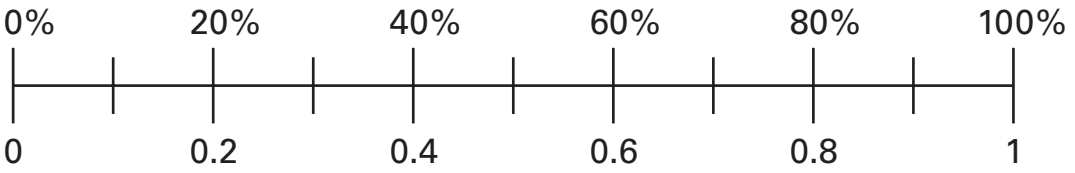
. . . . . 1 mark

(c) On Monday tickets are **half price**.

On Monday, how much does it cost altogether for **one adult** and **one child**?

£ . . . . . 1 mark

8 The scale shows both percentages and decimals.



Fill in the missing **decimals** in the gaps below.

The first one is done for you.

60% is the same as ..*0.6*..

30% is the same as ....
1 mark

3% is the same as ....
1 mark

9 When $x = 3$, what is the value of $x + 1$?

. . . . . 1 mark

When $y = 10$, what is the value of $2y$?

. . . . . 1 mark

Kevin says:

> When $x = 3$ and $y = 10$, the value of $\frac{2y}{x + 1}$ is **5**

Is Kevin correct? Tick (✓) Yes or No.

☐ Yes ☐ No

Explain your answer.

. . . . . 1 mark

10 Fill in the missing numbers.

$2 \times \square = 12.4$

1 mark

$2 \times \square = 12.5$

1 mark

11 (a) Work out $\frac{3}{4}$ of **£8**

£

1 mark

(b) Work out $\frac{3}{5}$ of **£10**

£

1 mark

(c) Is $\frac{2}{3}$ of **£15** the same amount as $\frac{1}{3}$ of **£30**?

Tick (✓) Yes or No.

☐ Yes ☐ No

Explain how you know.

1 mark

12

999 will divide exactly by 37

There is no remainder.

(a) Write down the remainder when **1000** is divided by 37

. . . . . .

1 mark

(b) Write down the remainder when **998** is divided by 37

. . . . . .

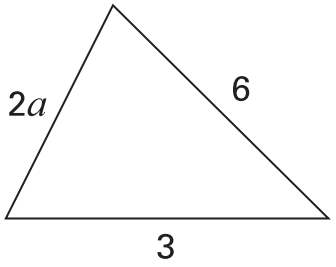
1 mark

(c) Write down a multiple of 37 that is bigger than 1000

. . . . . .

1 mark

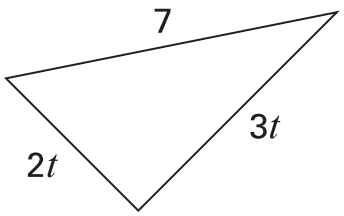
13 An expression for the **perimeter** of this shape is shown below.



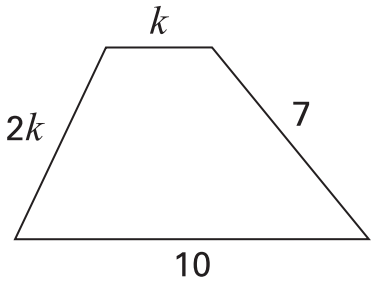
perimeter = $2a + 9$

Write an expression for the perimeter of each of these shapes.

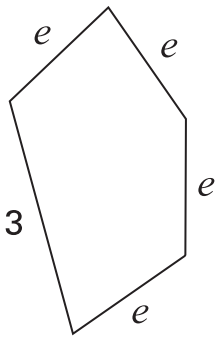
Write each expression in its **simplest form**.



perimeter = ... 1 mark



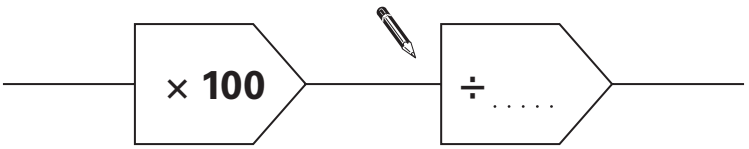
perimeter = ... 1 mark



perimeter = ... 1 mark

14 (a) Fill in the missing number.

is the same as



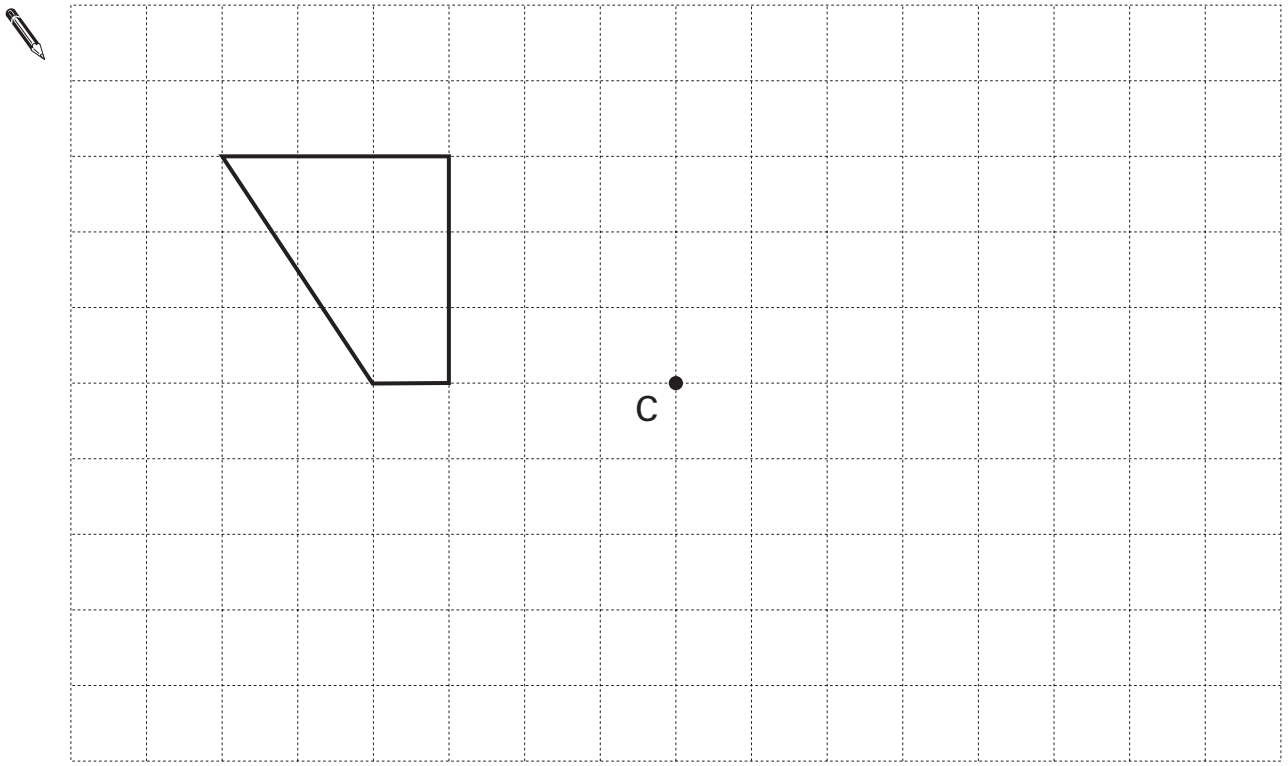
1 mark

(b) Work out 216 × 25

....

2 marks

15 Look at the shape drawn on the square grid.



On the grid, draw a **180° rotation** of the shape, using **point C** as the **centre** of rotation.

2 marks

16 Draw lines to match the boxes.

The first one is done for you.

To find 50% of a number ...	divide the number by 10
To find 10% of a number ...	divide the number by 2
To find 20% of a number ...	divide the number by 20
To find 5% of a number ...	divide the number by 100
To find 1% of a number ...	divide the number by 5

. . . .

. . . .

2 marks

17 Fill in the gap and tick (✓) **one** correct box for each statement below.

The **smallest** value a probability can be is .....

This probability is used for events that are:

certain	☐
likely	☐
even chance	☐
unlikely	☐
impossible	☐

1 mark

The **biggest** value a probability can be is .....

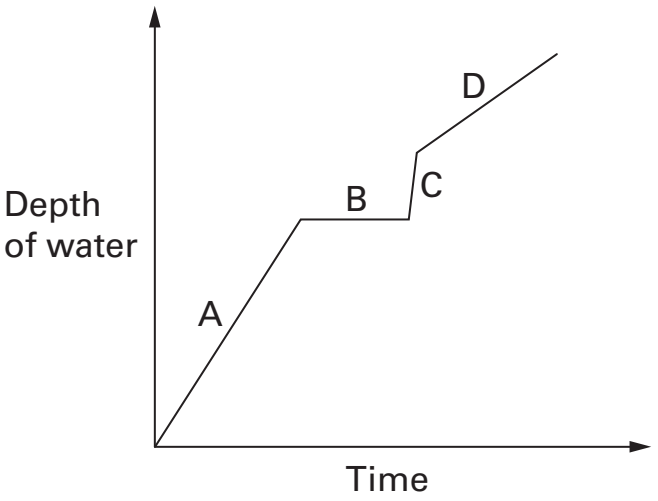
This probability is used for events that are:

certain	☐
likely	☐
even chance	☐
unlikely	☐
impossible	☐

1 mark

18 Alice starts to have a bath.

The simplified graph shows the depth of water in the bath.



Each line on the graph is labelled with a letter.

Match each letter to the correct description below.

A	The cold tap is off. The hot tap is off.
B	Alice gets in the bath.
C	The cold tap is off. The hot tap is full on.
D	The cold tap is full on. The hot tap is full on.

. . . .

. . . .

2 marks

19 (a) On the square grid below, draw a **quadrilateral** that has exactly **two right angles** and exactly **two equal sides**.

1 mark

(b) Now draw a **quadrilateral** that has exactly **one right angle** and exactly **two equal sides**.

1 mark

20 (a) Fill in the missing number to make the equation correct.

When k = 5, $4k$ + ☐ = $3k$ + 15

. . . . .
1 mark

(b) What is the value of k in this equation?

$$7k - 3 = 5k + 2$$

k = ...

. . . . .
2 marks

21 Alisha has some coloured counters in a bag.

She is going to take a counter at random from the bag.

The table shows the probability of taking a red, blue, green or yellow counter.

Colour	Probability
Red	$\frac{1}{2}$
Blue	$\frac{1}{4}$
Green	$\frac{1}{8}$
Yellow	$\frac{1}{8}$

(a) Explain how you know that **all** the counters in the bag are either red, blue, green or yellow.

1 mark

(b) Alisha says:

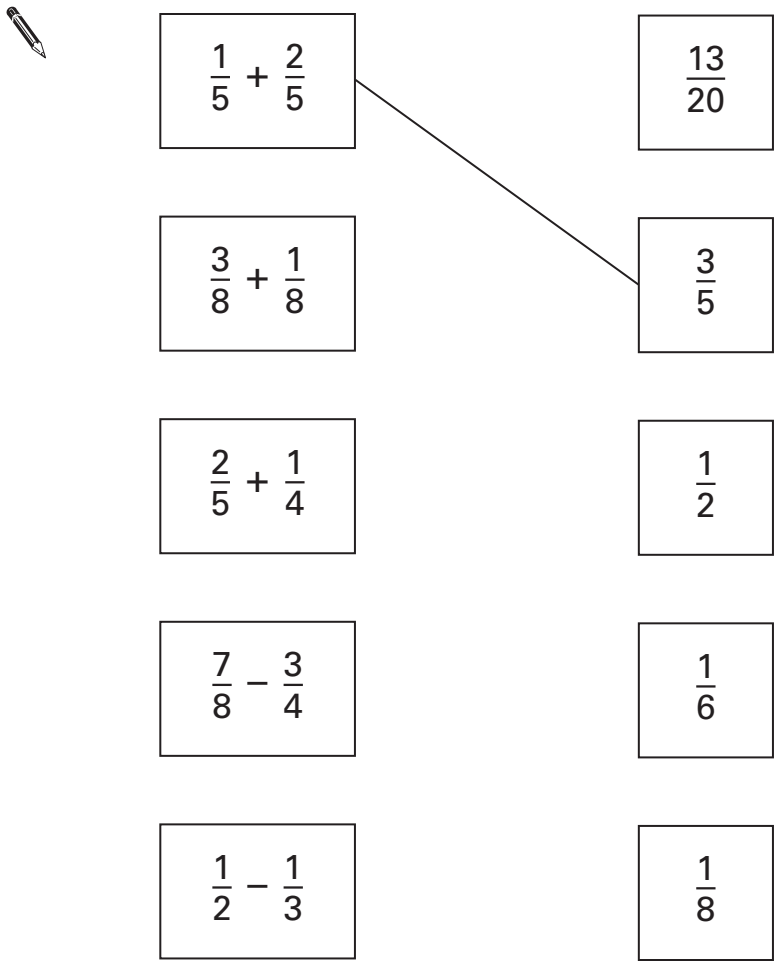
'The total number of counters in the bag is **30**'

Explain why Alisha **cannot** be correct.

1 mark

22 (a) Match each calculation with the correct fraction answer.

The first one is done for you.



. . . .

. . . .

2 marks

(b) Work out $\frac{1}{2} + \frac{1}{3}$

. . . . . .

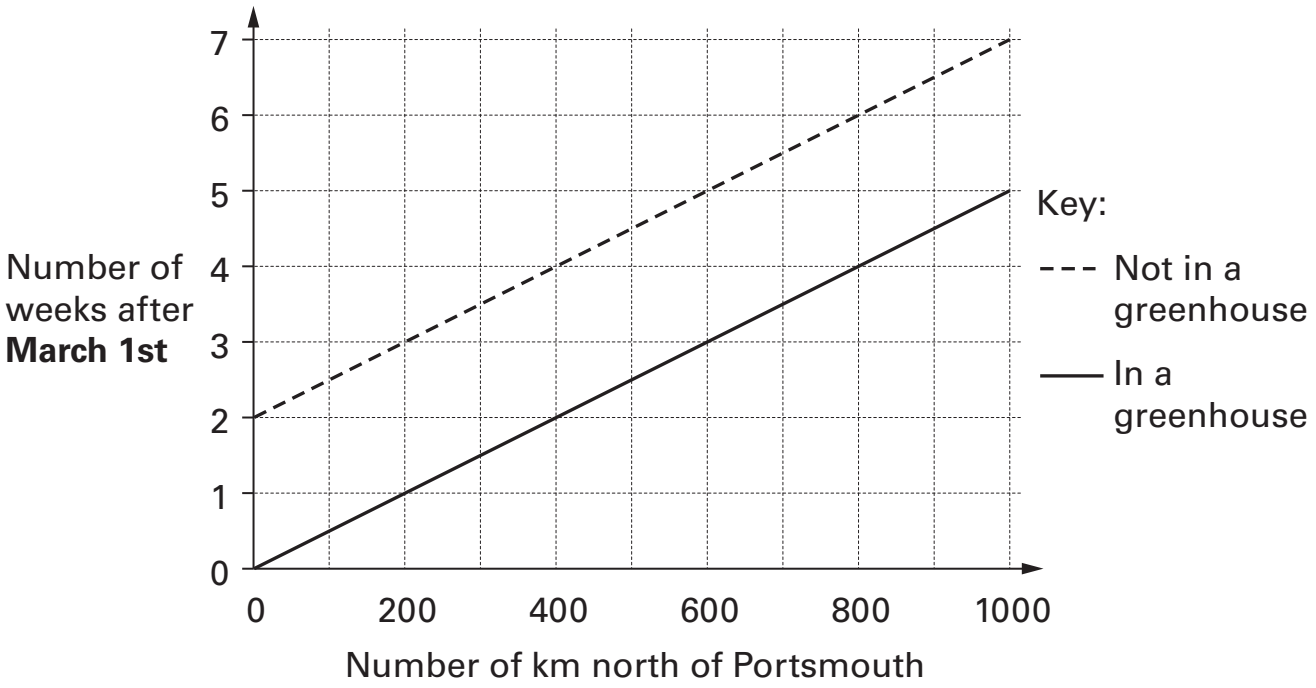
. . . .

1 mark

23 Alan lives in Portsmouth. He grows lettuces from seeds.
The earliest he should plant lettuce seeds is in March.

In the UK, the north is colder than the south,
so people who live in the north should plant their seeds later.

The graph shows when to plant lettuce seeds.



(a) Liam lives **400 km** north of Portsmouth. He has a **greenhouse**.

What is the earliest **date** he should plant lettuce seeds in his greenhouse?

. . . . . .

1 mark

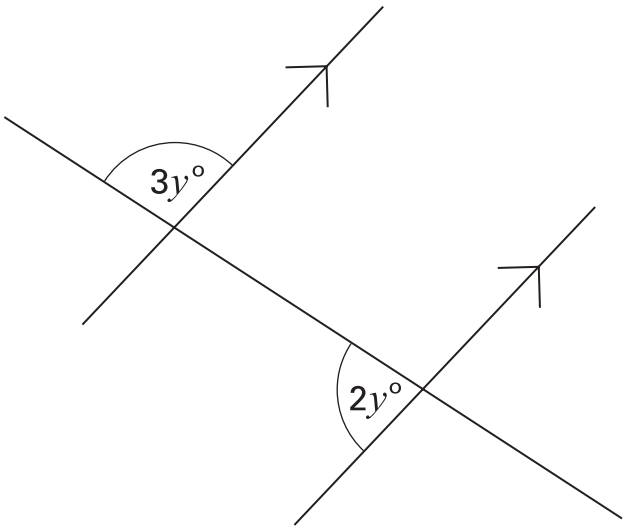
(b) Jill lives **800 km** north of Portsmouth. She does **not** have a greenhouse.

What is the earliest **date** she should plant lettuce seeds?

. . . . . .

2 marks

24 In this diagram the two parallel lines are marked with arrows.



Not drawn accurately

Work out the value of y

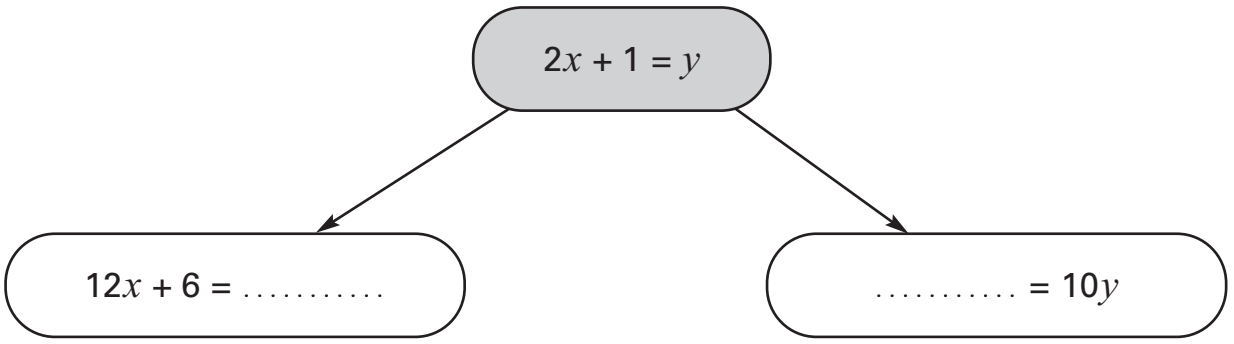
y = ...

2 marks

25 Look at this equation.

$$2x + 1 = y$$

Use it to complete the equations below that involve both x and y



1 mark

1 mark

26 $\frac{15}{16}$ as a decimal is 0.9375

What is $\frac{31}{16}$ as a decimal?

..... 1 mark

END OF TEST

QCA, Years 7 and 8 Team, 83 Piccadilly, London W1J 8QA

Order refs:
QCA/04/1154 (pupil pack)
QCA/04/1152 (teacher pack)