Ma

YEAR 7

LEVELS 4–6

PAPER 2

Year 7 mathematics test

Paper 2

Calculator 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 **may** use a calculator for any question in this test.
- You will need: pen, pencil, rubber, ruler, angle measurer or protractor and a calculator.
- 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.

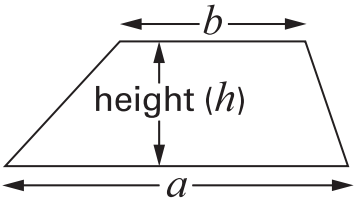
Calculators

You **may** use a calculator to answer any question in this test.

Formulae

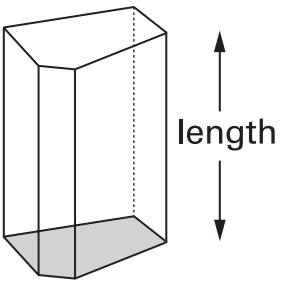
You might need to use these formulae.

Trapezium



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

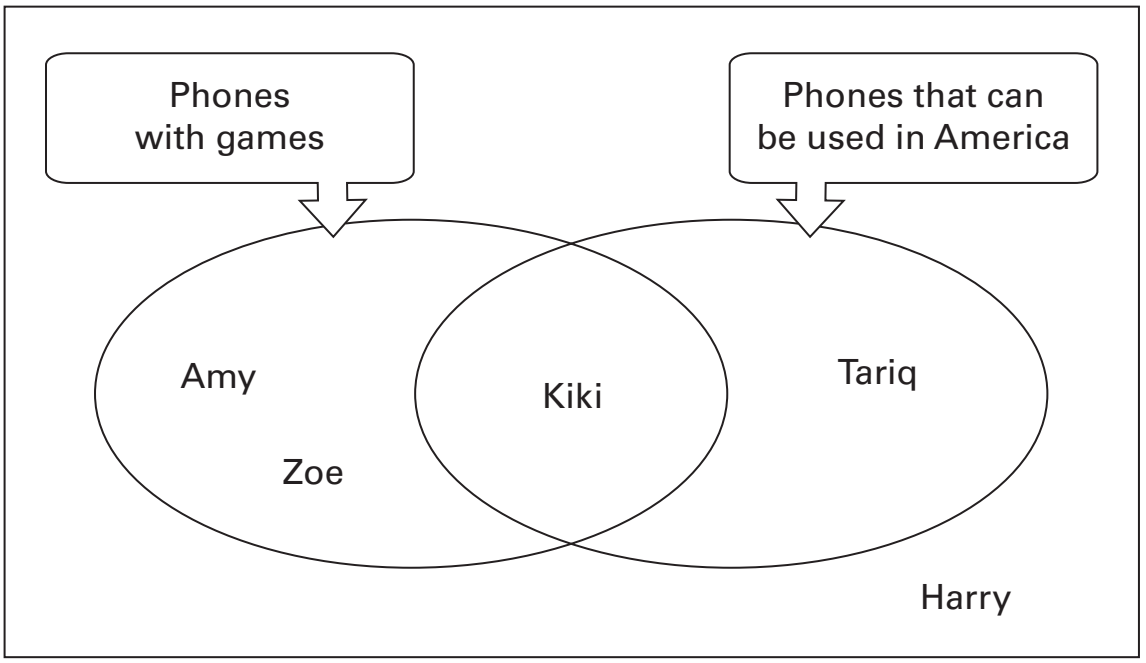
Prism



Volume = area of cross-section × length

1 Five friends have mobile phones.

The diagram shows information about their phones.



Use the information in the diagram to complete this table.

Person's name	Phones with games	Phones that can be used in America
Amy	✓	✗
Harry		
Kiki		
Tariq		
Zoe		

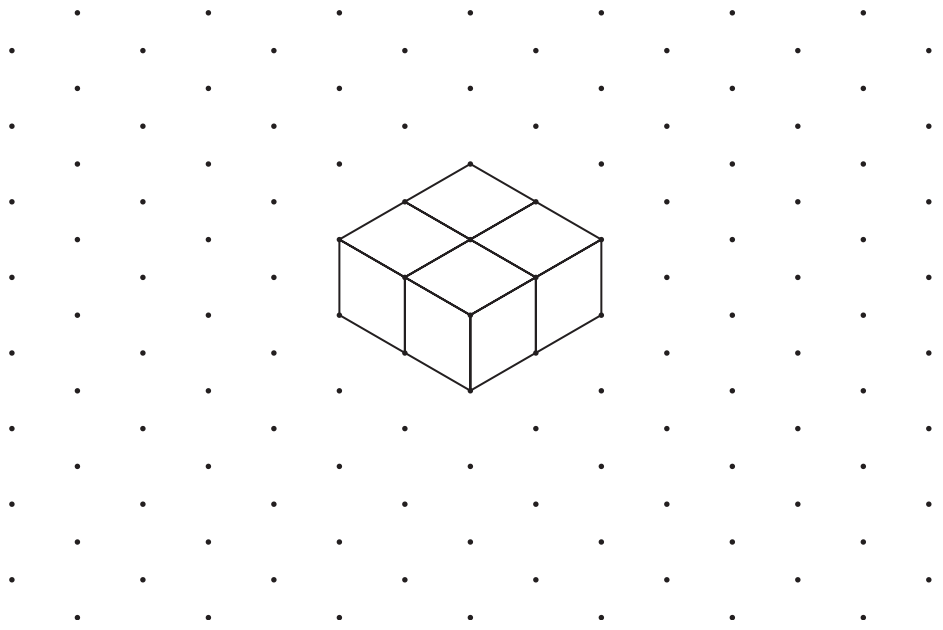
. . . . .

. . . . .

2 marks

2 Sonal has **four small cubes**.

She joins them together to make a shape.

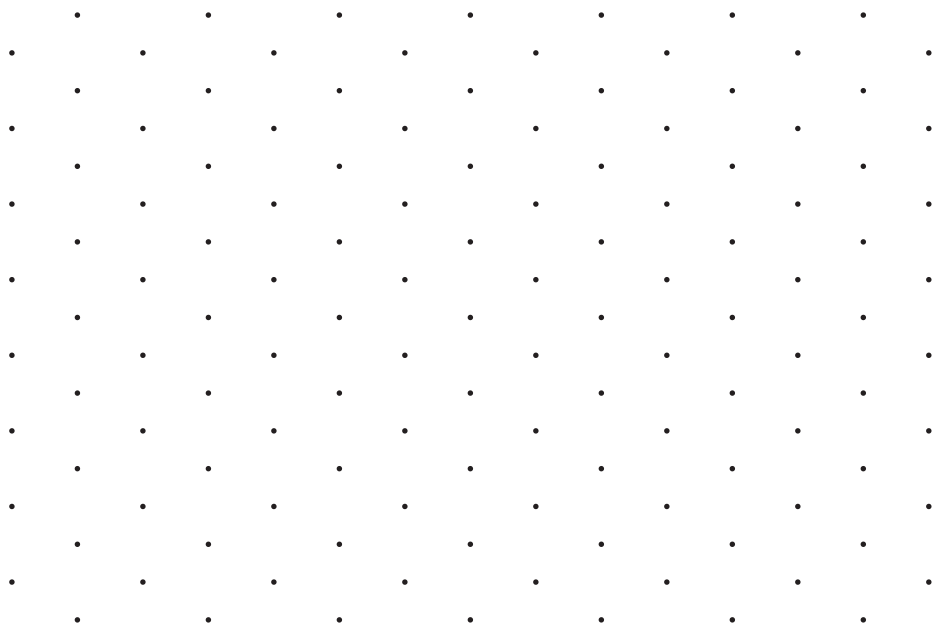


Isometric grid

Then Sonal makes a **different** shape with her four small cubes.

What shape could Sonal have made?

Draw this different shape on the isometric grid below.



Isometric grid

. . . . .

. . . . .

2 marks

3 On one day a doctor saw **20 people** altogether.

12 of the 20 people were male.

10 of the 12 males were adults.

The doctor saw 3 female children.

Fill in the table to show this information.

	Male	Female
Adult		
Child		

. . . .

. . . .

2 marks

4 A sequence of numbers starts at the number 12

The numbers **increase by 4** each time.

12	16	20	24	28	...

The sequence keeps going forever.

(a) Will the number **39** be in the sequence?

Tick (✓) Yes or No.

☐ Yes ☐ No

Explain your answer.

. . . . .
1 mark

(b) Will the number **100** be in the sequence?

Tick (✓) Yes or No.

☐ Yes ☐ No

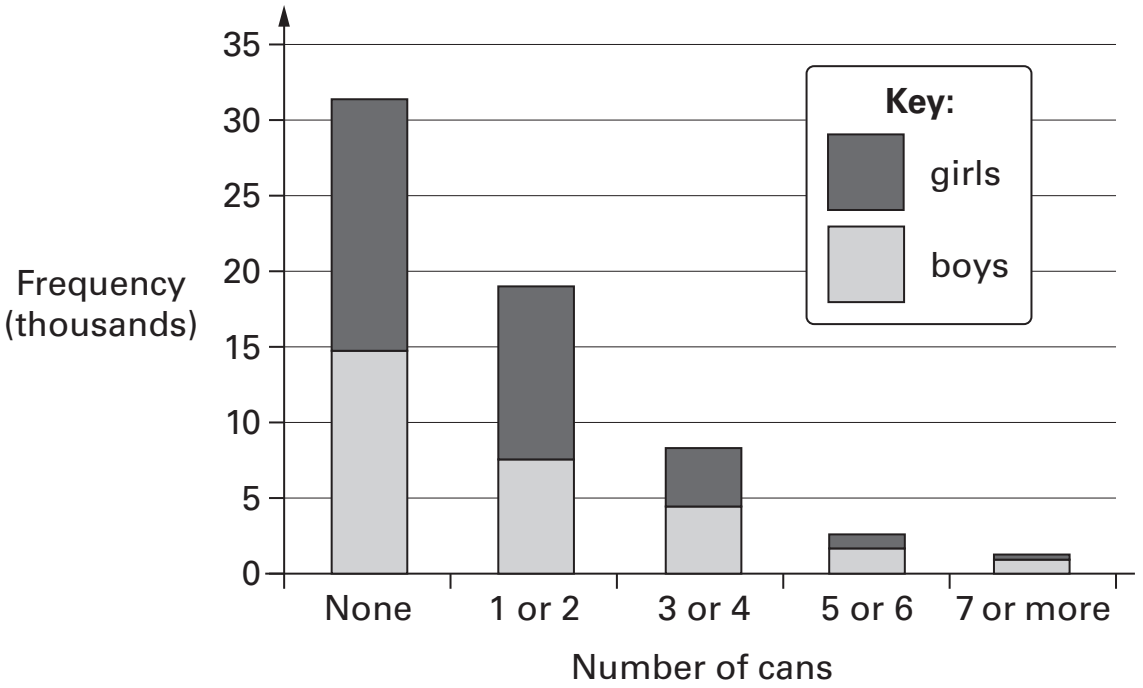
Explain your answer.

. . . . .
1 mark

5 As part of 'Census At School', pupils answered this question:

How many cans of drink have you had in the last two days?

The chart shows the results for boys and for girls.



(a) About **15 thousand boys** said 'None'.

About how many girls said 'None'?

..... thousand

1 mark

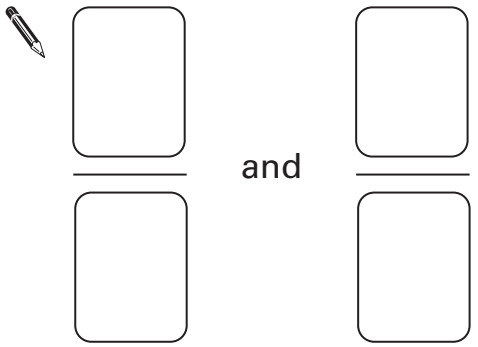
(b) **Altogether**, about how many pupils answered the question?

..... thousand

1 mark

Source: CensusAtSchool

6 Write two **different** fractions that are greater than $\frac{1}{2}$ but less than 1



2 marks

7 £1 = 1.56 dollars

How much is **£1.50** in dollars?

dollars

1 mark

8 (a) Fill in the gaps using units of **length**.

The first one is done for you.

There are **10** ..*mm*.. in one ..*cm*..

There are **100** ..... in one ..... 1 mark

There are **1000** ..... in one ..... 1 mark

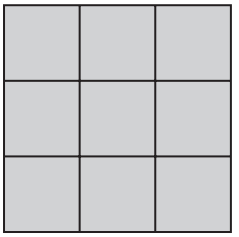
(b) Fill in the gaps using units of **mass**.

There are **1000** ..... in one ..... 1 mark

9 Mary and David have square tiles like this:

They arrange the tiles to make bigger squares.

Example: **9 tiles** can make a **3 by 3 square**.



(a) Mary arranges **25 tiles** to make one square.

Complete the sentence below.

25 tiles can make a ..... by ..... square.

1 mark

(b) David arranges **25 tiles** to make **two squares**.

His two squares are not the same size.

What are the sizes of David's squares?

First square: ..... by .....

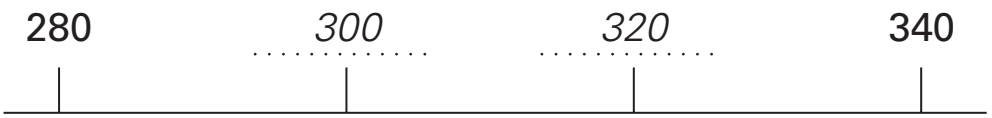
Second square: ..... by .....

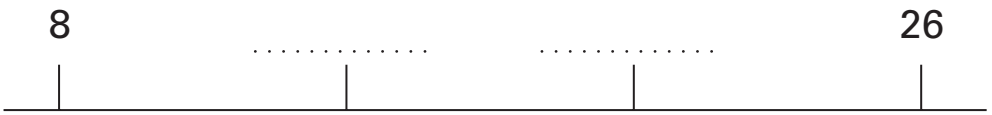
2 marks

10 The numbers on these number lines go up in **equal steps**.

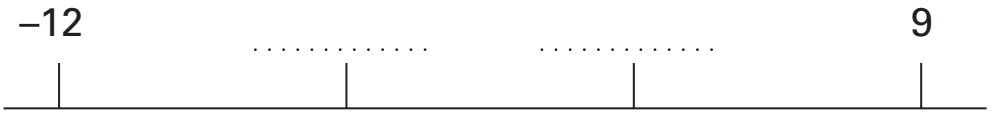
Fill in the missing numbers.

The first number line is done for you.



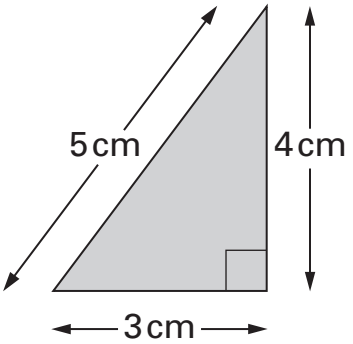


1 mark



1 mark

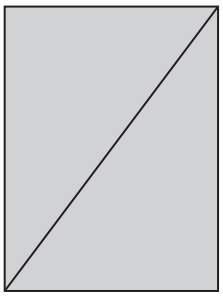
11 I have some triangular tiles like this:



Not drawn accurately

I use two of these tiles to make different shapes.

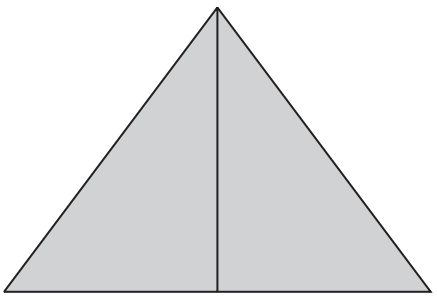
For each shape, work out its **perimeter**.



The perimeter of the rectangle is:

..... cm

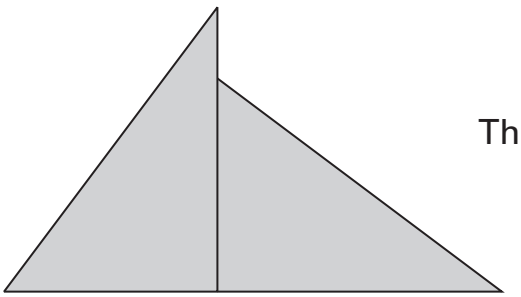
1 mark



The perimeter of the isosceles triangle is:

..... cm

1 mark

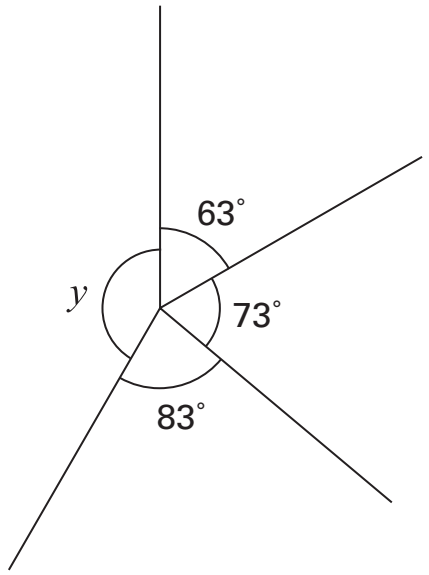


The perimeter of the quadrilateral is:

..... cm

1 mark

12 Work out the size of angle y



Not drawn accurately

$y =$ ..... °

2 marks

13 Solve these equations.

$3a + 2 = 14$

$a =$ .....

1 mark

$\frac{b + 1}{2} = 5$

$b =$ .....

1 mark

14 I went for a **5 mile** walk.

About how many **kilometres** did I walk?

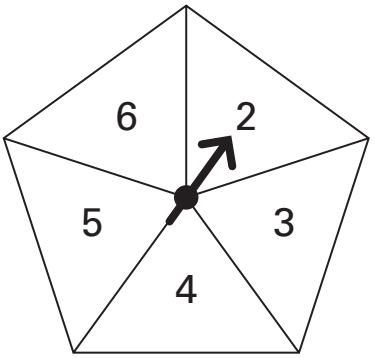
Ring the best answer below.

2 4 6 8 10

1 mark

15 The fair spinner has 5 equal sections.

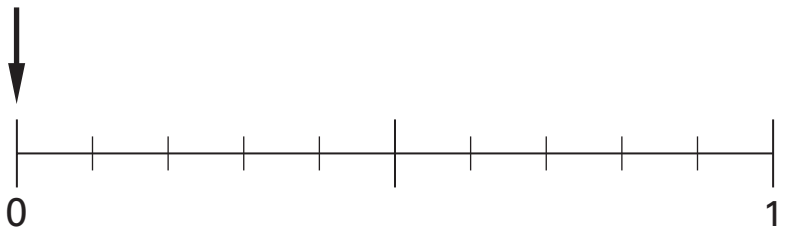
I am going to spin the pointer.



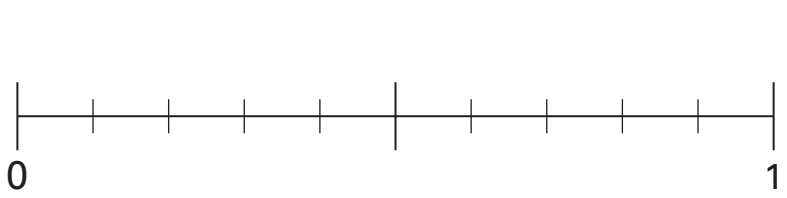
For each statement below, show the **probability** by drawing an arrow (↓) on the probability scale.

The first one is done for you.

The pointer will show the number **10**

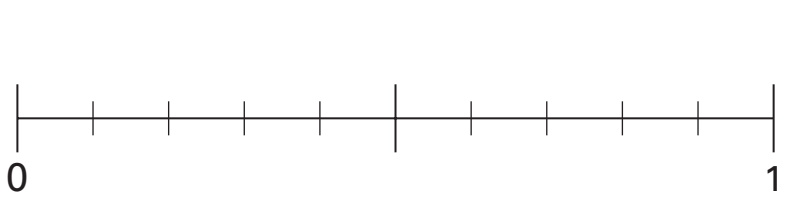


The pointer will show the number **3**



1 mark

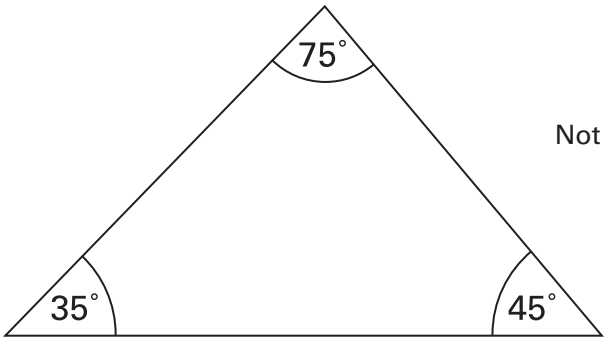
The pointer will show an **even** number.



1 mark

16 (a) Tina measures the angles in a triangle.

The sketch shows her results.



Not drawn accurately

How can you tell that Tina has made a mistake?

. . . . .

1 mark

(b) Draw a triangle with **one angle of 35°** and **one angle of 45°**

Use the line below as one side of the triangle,
and draw the triangle **accurately**.

. . . . .

. . . . .

2 marks

17 (a) Look at these three number cards.

8	5	8

Show that the **mean** is **7**

. . . . .
1 mark

(b) Now look at these number cards.

You cannot see the number on one of the cards.

6	5	4	?

The **mean** is **6**

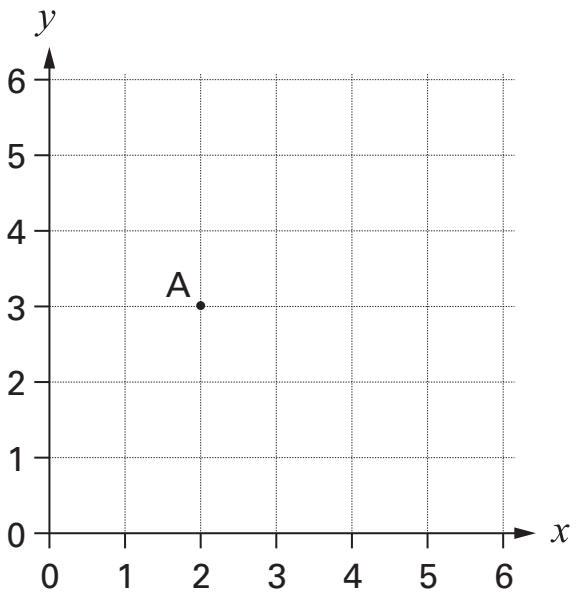
What is the missing number?

. . . . .

. . . .

. . . . .
2 marks

18 (a) Look at the graph.



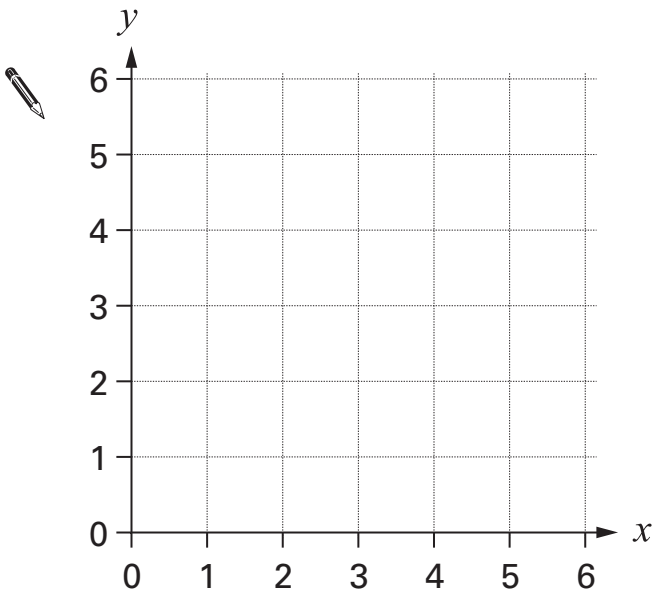
The x-coordinate of **A is 2**

What is the ***y*-coordinate** of **A**?

. . . . . .

1 mark

(b) On the graph below,
mark **two points** that have an ***x*-coordinate** of **4**

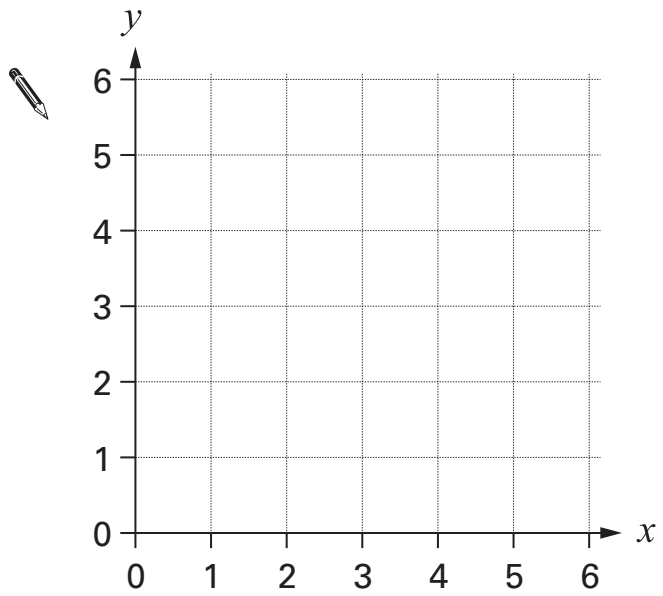


. . . . . .

1 mark

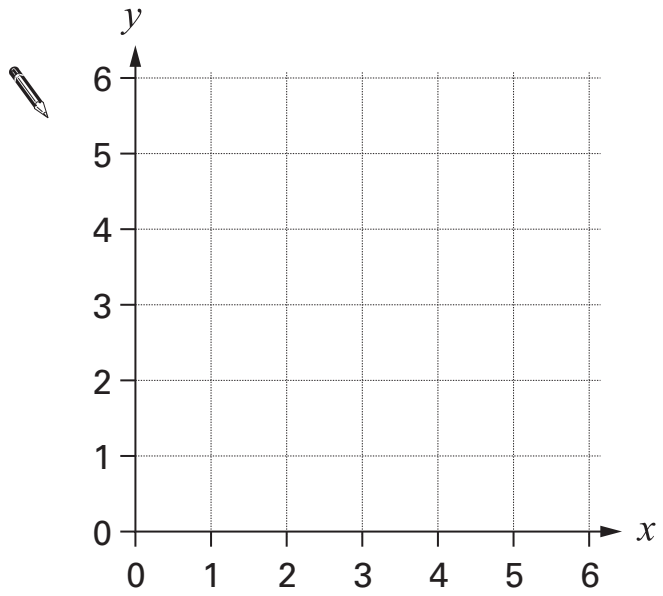
(c) On the graph below,

show with a **straight line all** the points that have an ***x*-coordinate** of **4**



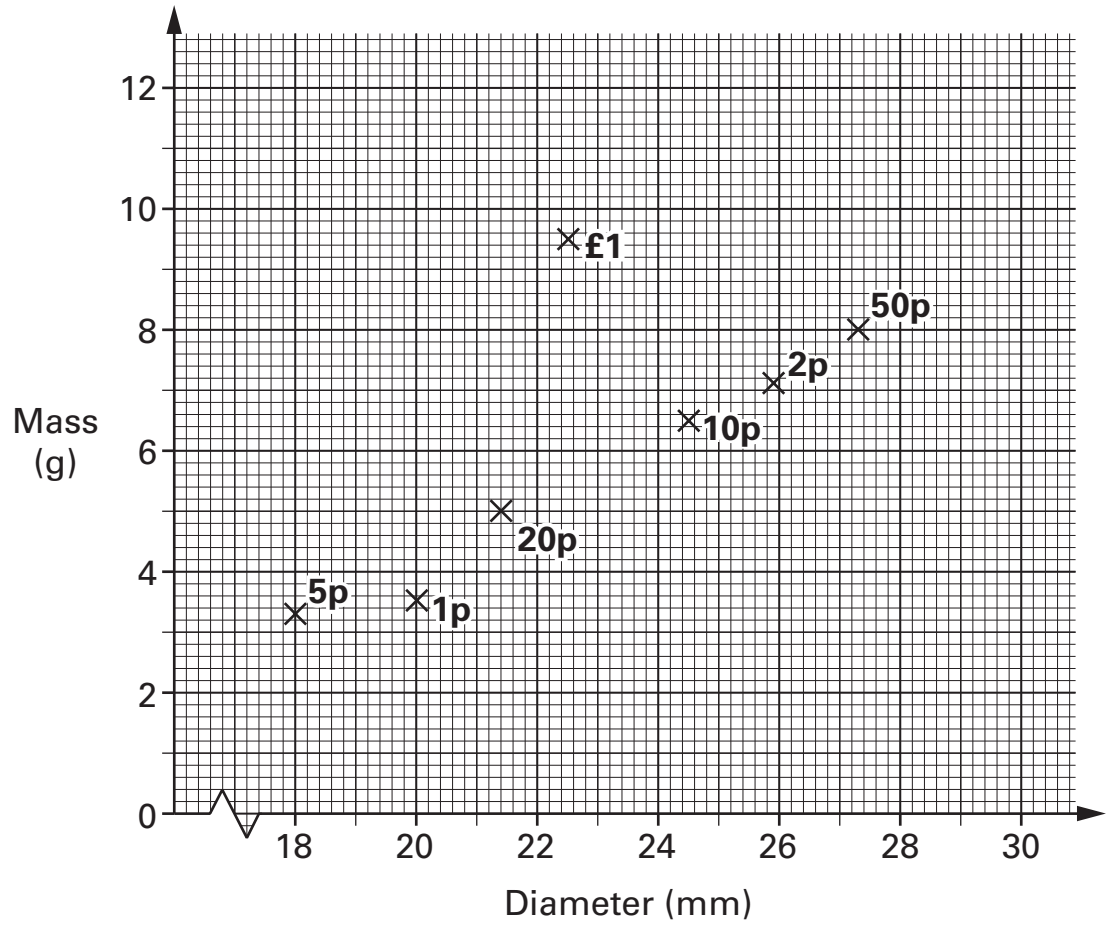
1 mark

(d) On the graph below, draw the line $y = 1$



1 mark

19 This graph shows the diameters and masses of some coins.



(a) One of the coins that is heavier than the 10p coin has a lower value.

Which coin is this?

. . . . . 1 mark

(b) What is the **value** of the coin that has a mass of **6.5g**?

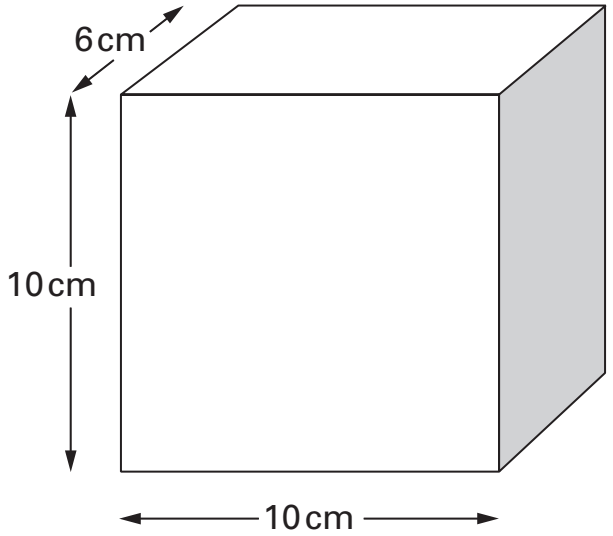
. . . . . 1 mark

(c) The £2 coin has a diameter of **28.4mm** and has a mass of **12g**.

On the graph, put a cross to represent the £2 coin.

1 mark

20 (a) The diagram shows a cuboid.



Not drawn accurately

What is the volume of this cuboid?

. . . . .
1 mark

. . . . . .

. . . . .
1 mark

(b) The volume of a different cuboid is **half the volume** of the cuboid in part (a).

What could the **dimensions** of this different cuboid be?

. . . . . cm by . . . . . cm by . . . . . cm

. . . . .
1 mark

21 In a quiz, Ravi answered **24** out of **40** questions correctly.

What **percentage** of the questions did he answer correctly?

..... %

1 mark

22 Four thousand years ago people thought the value of π was $\left(\frac{16}{9}\right)^2$

(a) Write $\left(\frac{16}{9}\right)^2$ as a decimal correct to **2 decimal places**.

1 mark

(b) Now write the **real value** of π correct to **2 decimal places**.

1 mark

23 Dan and Evie each threw a six-sided dice.

The table shows how many sixes they threw.

	Dan	Evie
Total number of throws	45	60
Number of sixes	9	11

Who had the greater proportion of sixes?

Tick (✓) Dan or Evie.

☐ Dan ☐ Evie

You **must** show your working.

. . . .

. . . .

2 marks

24 (a) Look at this information.

$x + y = 10$

Use it to find the **value** of this expression.

$(x + y)^2 =$ .....

1 mark

(b) Look at this information.

$x + y = 10$

$x > y$

$x < 7$

What **values** could x and y be?

Write one pair.

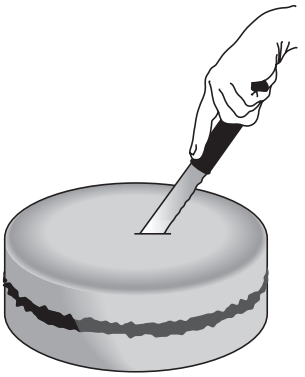
$x =$ ..... $y =$ .....

1 mark

25 Ben is **10** years old.

Cindy is **15** years old.

Tom is **20** years old.



They are going to cut a cake into 3 slices from the centre.

The size of the slices will be proportional to their ages.

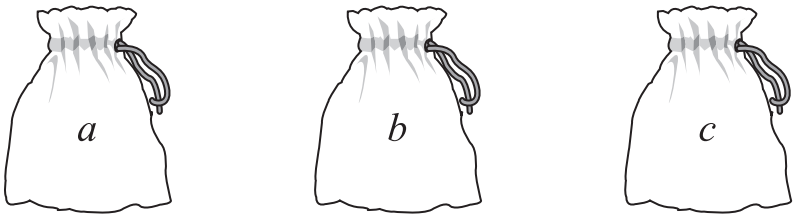
What will the **angle** at the centre of **Ben's** slice be?

..... °

2 marks

26 Joe has three bags of counters.

The diagram shows expressions for the number of counters in each bag.



Look at these equations.

$a = b + 10$ $\quad$ $b = c + 5$

Write an **equation** to show the relationship between a **and** c

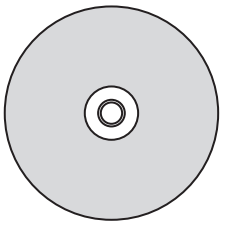
. . . . . .

1 mark

27 The **diameter** of a CD is **12cm**.

What is the **circumference** of the CD?

Give your answer to **one decimal place**.



. . . . . .

2 marks

. . . . . .

1 mark

END OF TEST

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

Order refs:
QCA/04/1155 (pupil pack)
QCA/04/1152 (teacher pack)