

Year 6

# Mathematics

## Practice Questions

### Measurement

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# Section One:

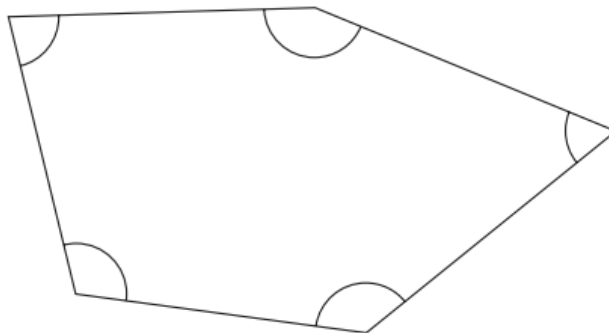
## Angles and Lines

1

Look at this shape.

[2009]

Tick (✓) each angle that is **less** than a right angle.



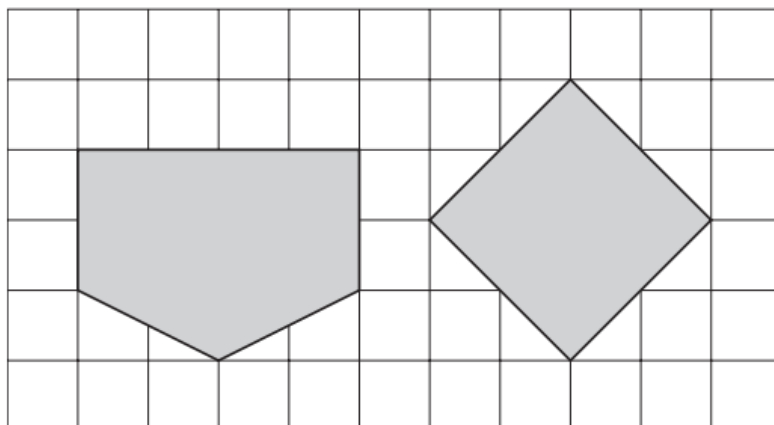
[1 mark]

2

Here are two shapes on a square grid.

[2015]

For each shape, write how many **right angles** it has.

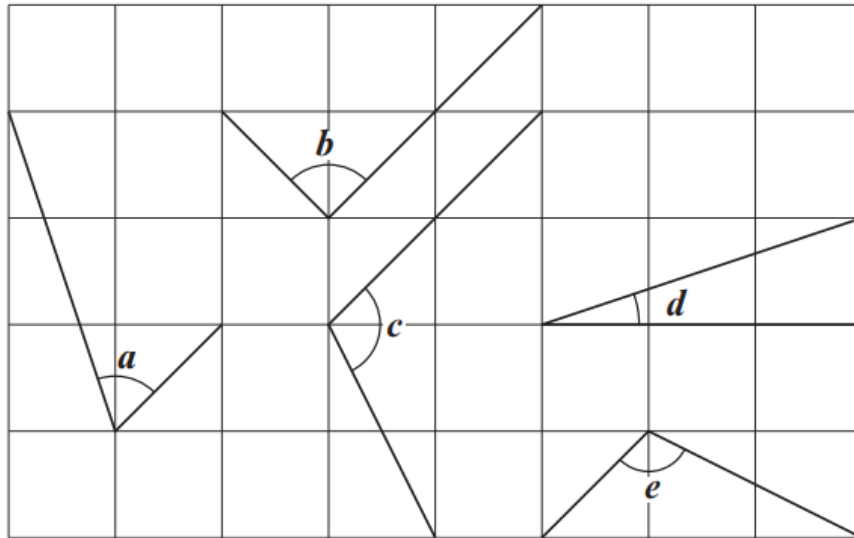


[1 mark]

3

Here are five angles marked on a grid of squares.

[2016]



Write the letters of the angles that are **obtuse**.

\_\_\_\_\_

Write the letters of the angles that are **acute**.

\_\_\_\_\_

[2 marks]

4

Look at the letters below.

[2017]

Circle the letter below that has both parallel **and** perpendicular lines.

A C E L Z

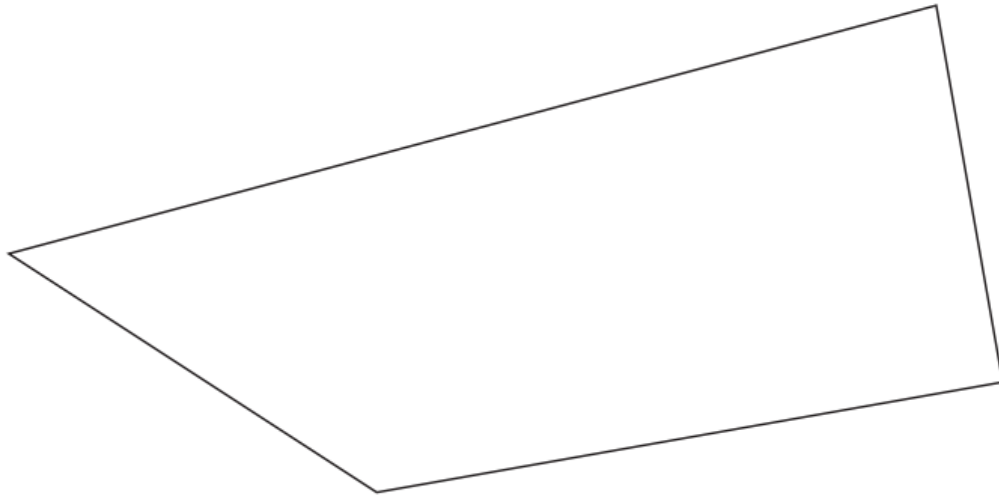
[1 mark]

5

In this shape, one of the angles is **obtuse**.

[2014]

Tick (✓) the obtuse angle.

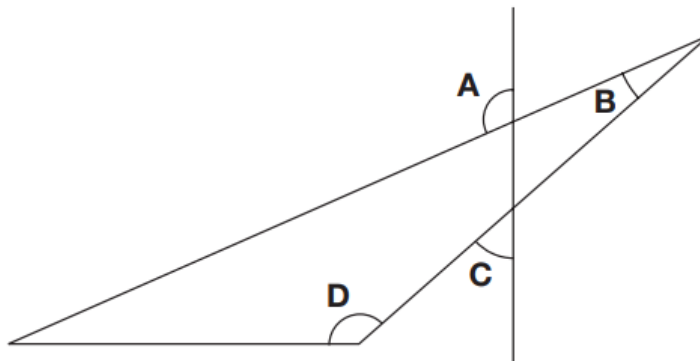


[1 mark]

6

This diagram has four angles marked **A**, **B**, **C** and **D**.

[2011]



Write the letters of the angles that are **obtuse** angles.



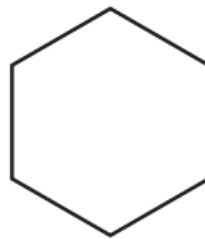
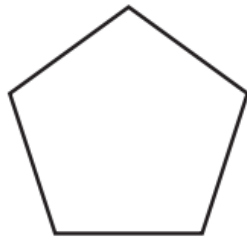
\_\_\_\_\_

[1 mark]

7

Circle the **pentagon** with exactly **four acute angles**.

[2017]

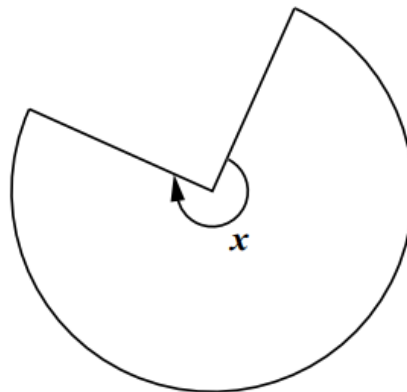


[1 mark]

8

This shape is **three-quarters of a circle**.

[2001]

How many degrees is **angle  $x$** ?


[1 mark]

9

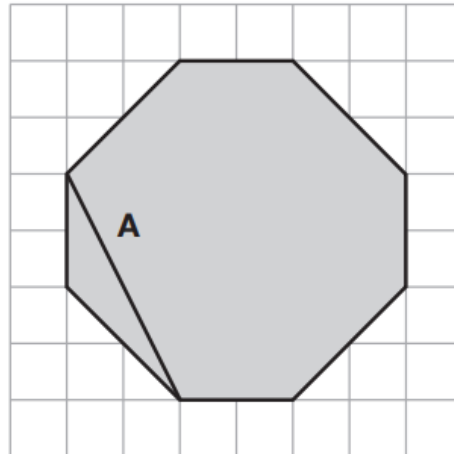
The diagram shows a shaded octagon on a square grid.

[2016S]

Line **A** joins two vertices of the octagon.

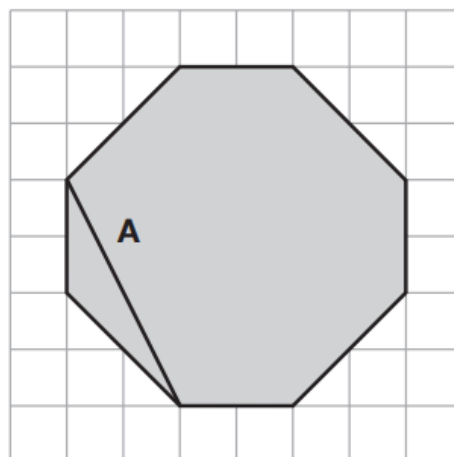
Join two other vertices to draw a line **parallel** to line **A**.

Use a ruler.



Join two vertices to draw a line **perpendicular** to line **A**.

Use a ruler.



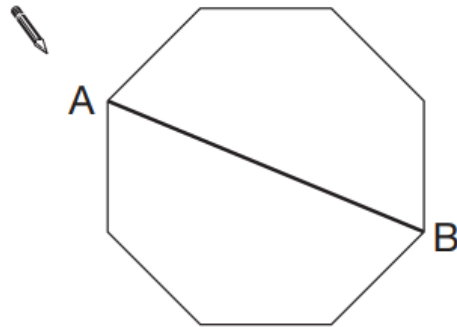
[2 marks]

10

[2008]

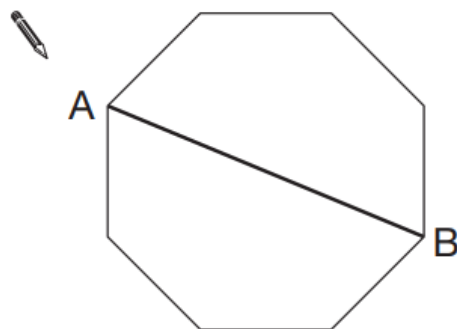
Here is a regular octagon with two vertices joined to make the line AB.

Join two other vertices to draw **one** line that is **parallel** to the line AB.



Here is the octagon again.

Join two vertices to draw **one** line that is **perpendicular** to the line AB.



[2 marks]

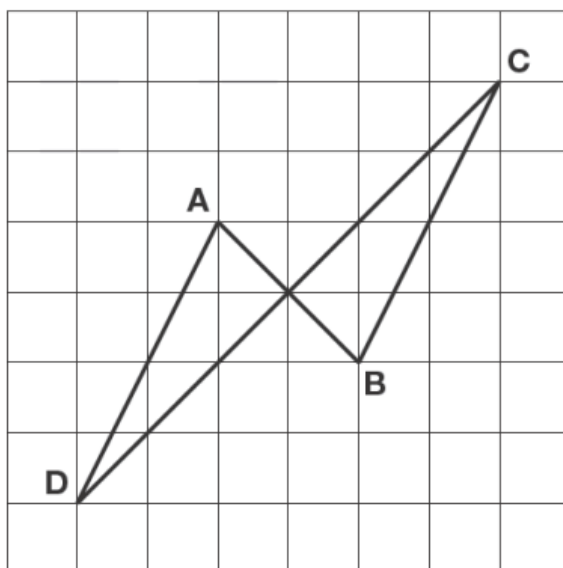


11

The diagram shows four lines drawn on a square grid.

[2012]

The lines are **AB**, **BC**, **CD** and **DA**.



Which two of the lines are **parallel**?  
Circle them in the list below.



AB

BC

CD

DA

Which two of the lines are **perpendicular**?  
Circle them in the list below.



AB

BC

CD

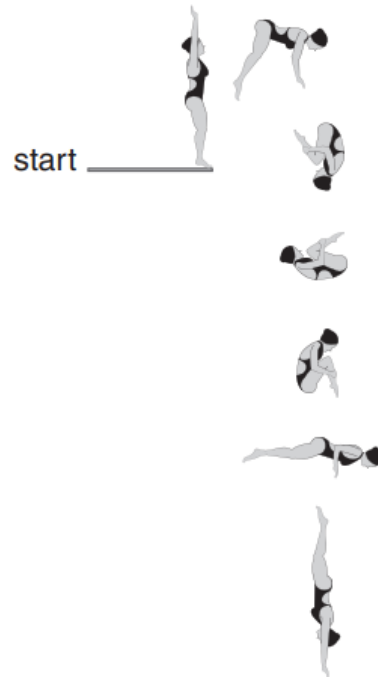
DA

[2 marks]

14

Layla completes one-and-a-half somersaults in a dive.

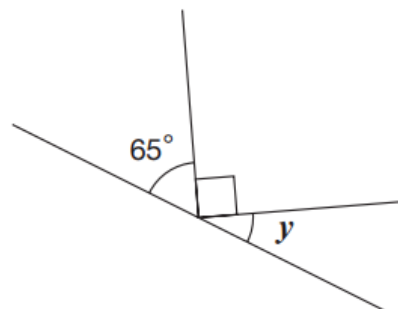
[2017]

How many **degrees** does Layla turn through in her dive?

[1 mark]


15

[2009]



Not to scale

Calculate the size of angle  $y$  in this diagram.Do **not** use a protractor (angle measurer).

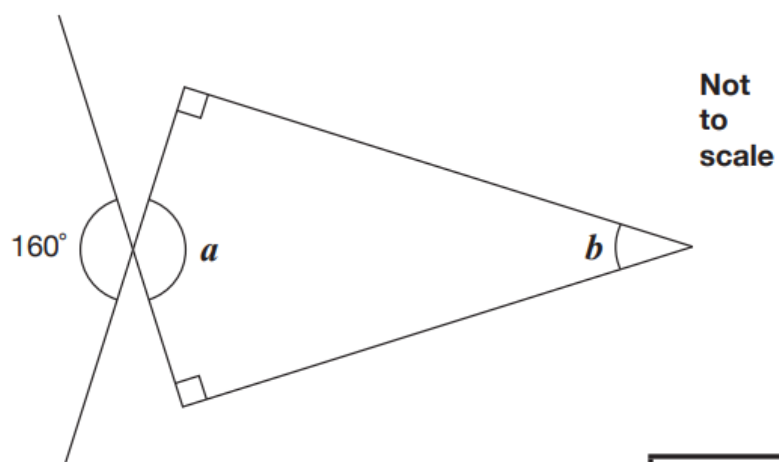
  $y =$

[1 mark]

17

Calculate the size of angles  $a$  and  $b$  in this diagram.

[2016]


$$a =$$

9

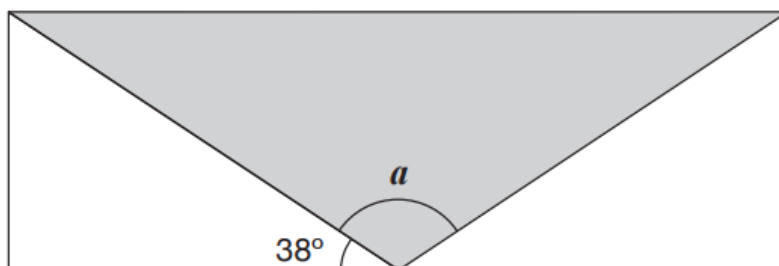
$$\mathbf{b} =$$


[2 marks]

18

A shaded **isosceles** triangle is drawn inside a rectangle.

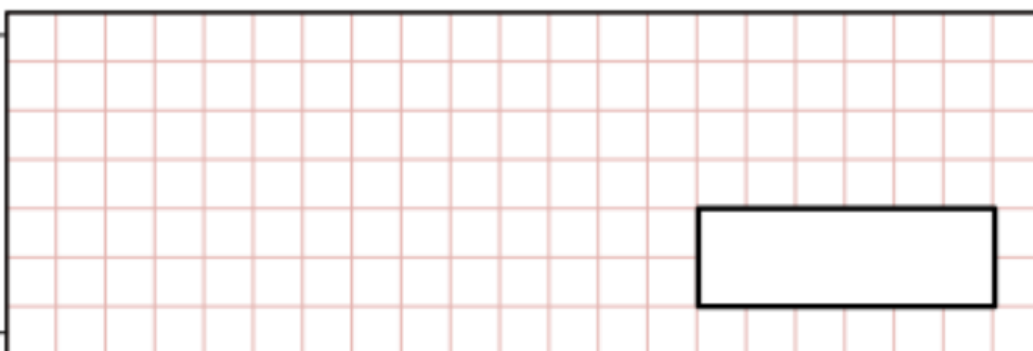
[2016S]



Not  
to  
scale

Calculate the size of angle  $a$ .

Show your method

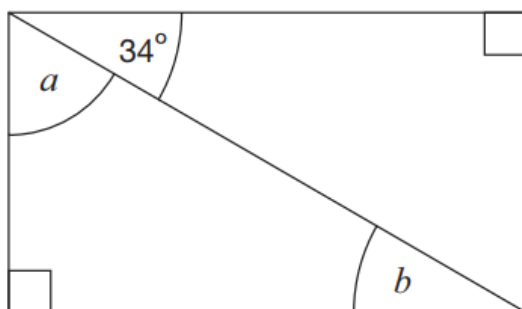


[2 marks]

19

Here is a rectangle.

[2015]



Not to  
scale

Calculate the size of angles  $a$  and  $b$ .

Do not measure the angles.



$a =$

$b =$

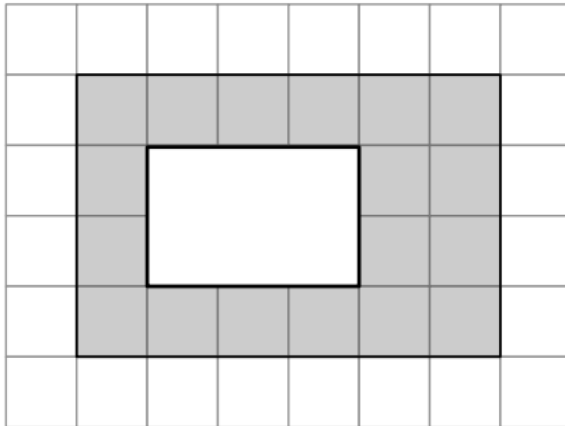
[1 mark]

## Section Two: Perimeter and Area

1

Here is a 1 cm square grid. Some of the grid is shaded.

[2018]



What is the area of the shaded shape?

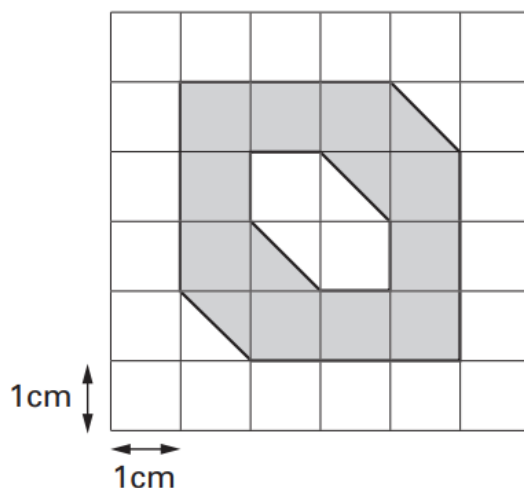
cm<sup>2</sup>

[1 mark]

2

Here is a 1cm square grid. Some of the grid is shaded.

[2005]



What is the area of the shaded shape?

cm<sup>2</sup>

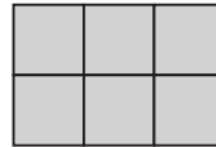
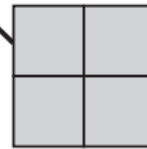
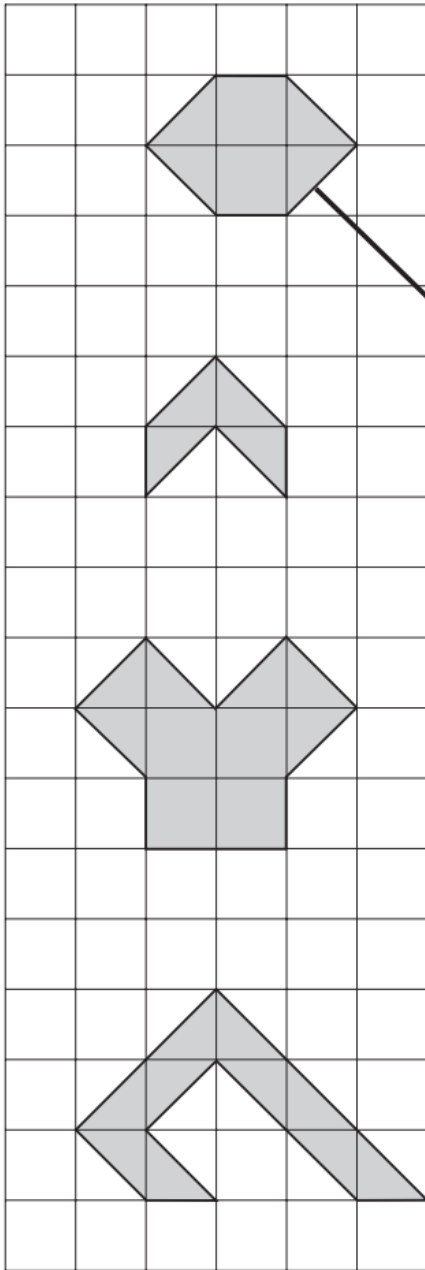
[1 mark]

3

[2002]

Match each shape on the left to one with **equal area** on the right.

One has been done for you.

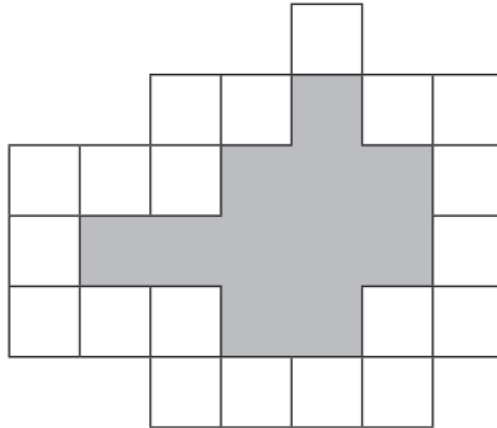


[2 marks]

4

Here is a set of 20 squares around a shaded space.

[2013]



What is the area of the shaded space?



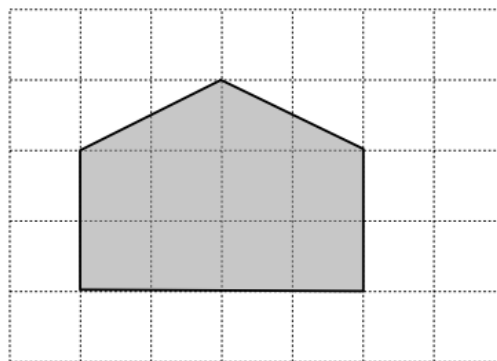
squares

[1 mark]

5

Here is a shaded shape on a 1 cm square grid.

[2012]



What is the area of the shaded shape?

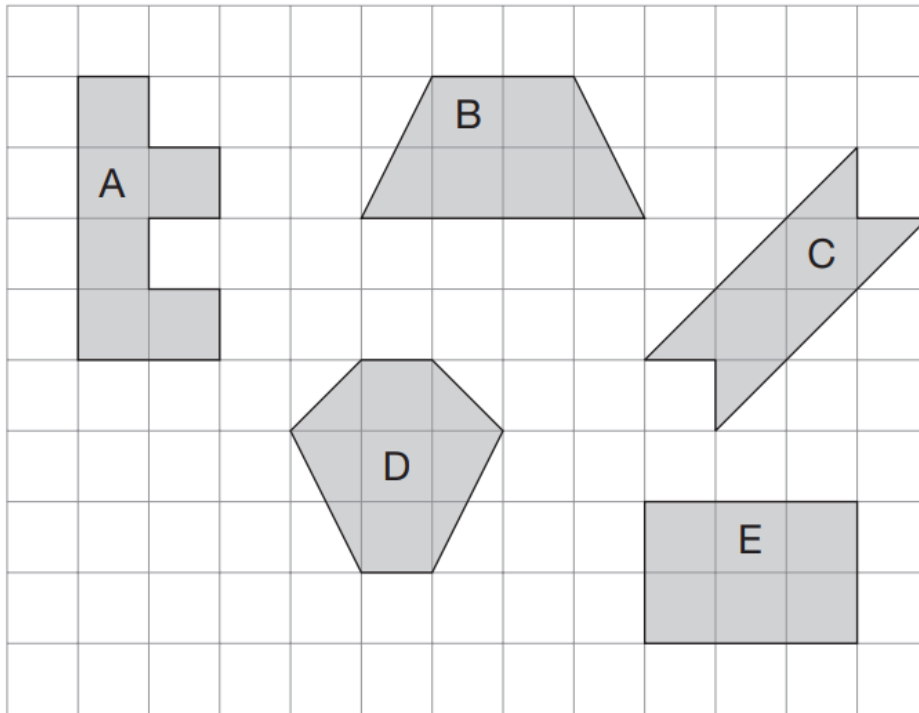
cm<sup>2</sup>

[1 mark]

6

Here are some shapes on a 1 cm square grid.

[2011]



What is the **perimeter** of shape A?


 cm

Write the letter of the shape that has the **smallest area**.




[2 marks]



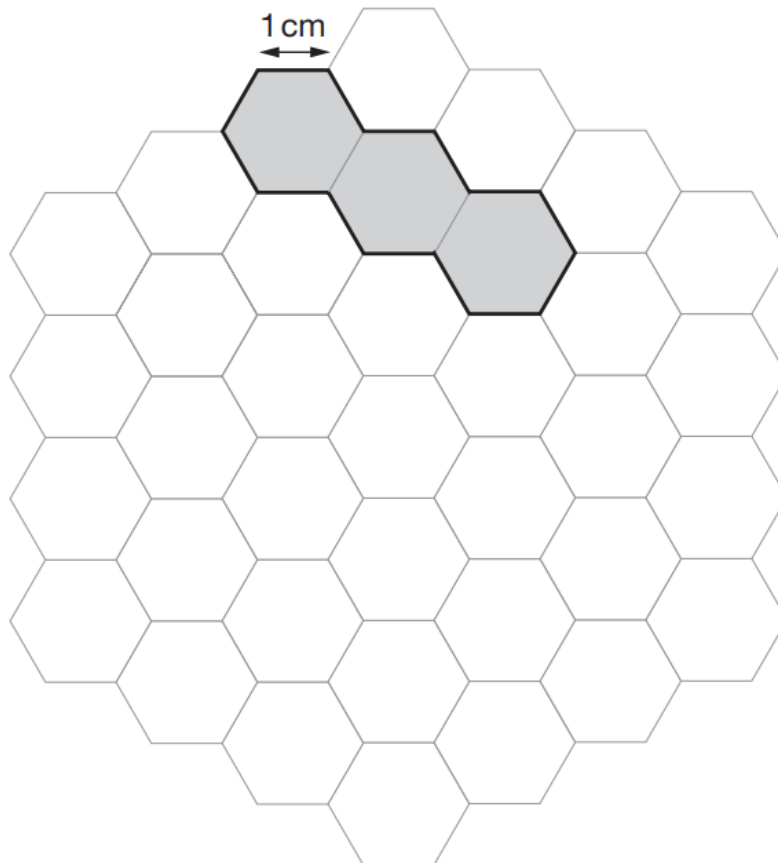
9

Here is a grid of regular hexagons.

[2007]

The shaded shape has an area of 3 hexagons and a perimeter of 14cm.

Draw another shape on the grid which has an **area** of 4 hexagons and a **perimeter** of 14cm.

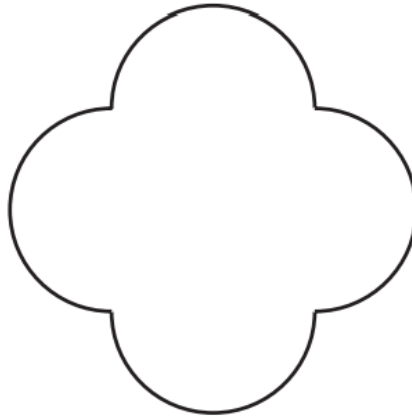


[1 mark]

12

This shape is made out of four identical curves.

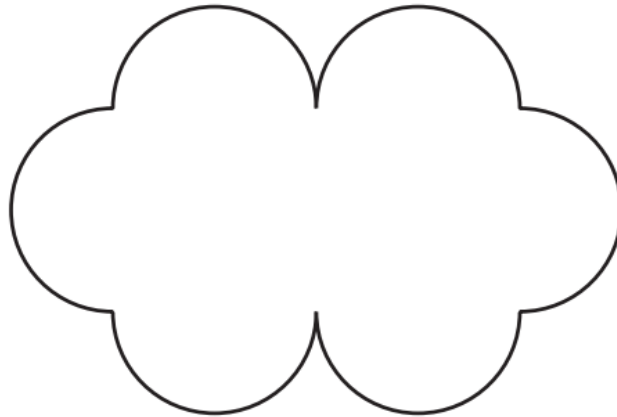
[2014]



**Not  
actual  
size**

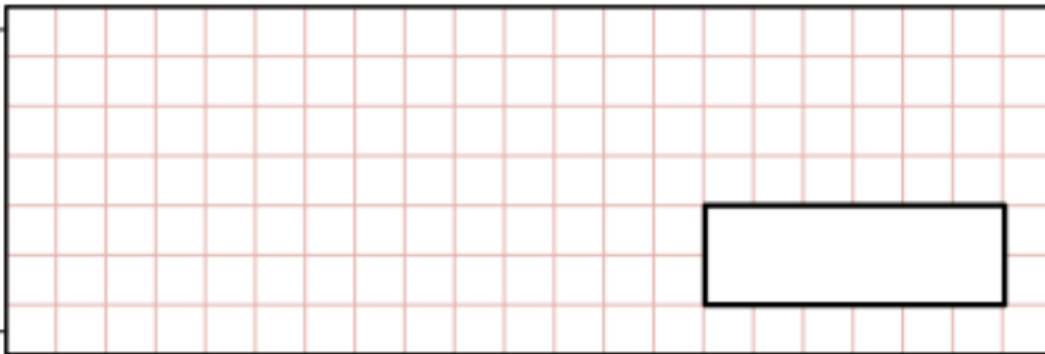
The perimeter of the shape is 28 centimetres.

A new shape is made out of curves of the same size.



What is the perimeter of the new shape?

Show your method



[2 marks]

14

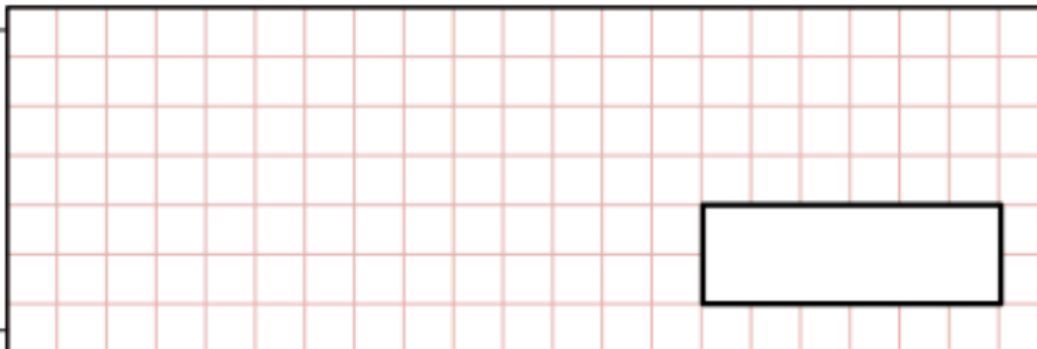
The area of a rugby pitch is 6,108 square metres.

[2016S]

A football pitch measures 112 metres long and 82 metres wide.

How much larger is the area of the football pitch than the area of the rugby pitch?

Show your method



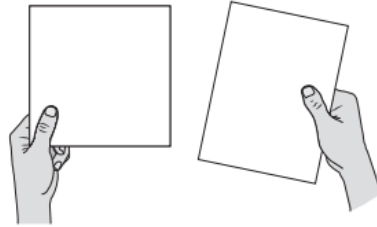
[2 marks]

18

[2017]

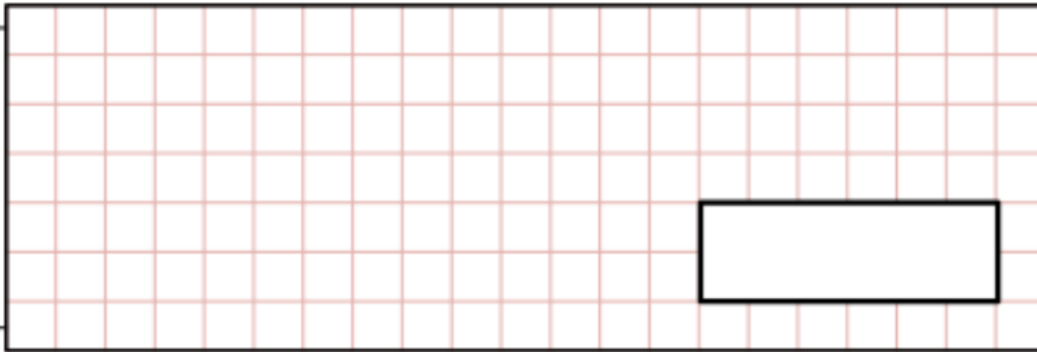
A square tile measures 20cm by 20cm.

A rectangular tile is 3cm **longer** and 2cm **narrower** than the square tile.



What is the **difference in area** between the two tiles?

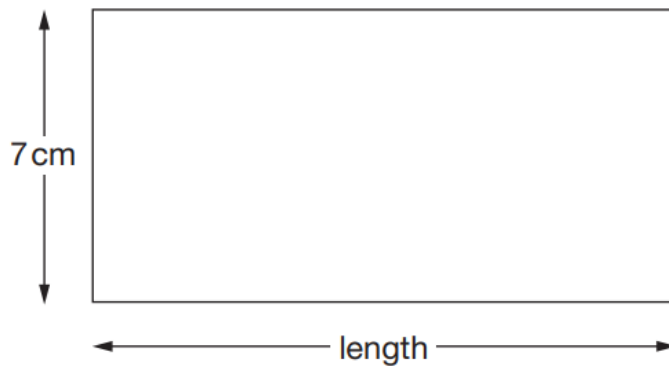
Show your method



[3 marks]

19

[2010]

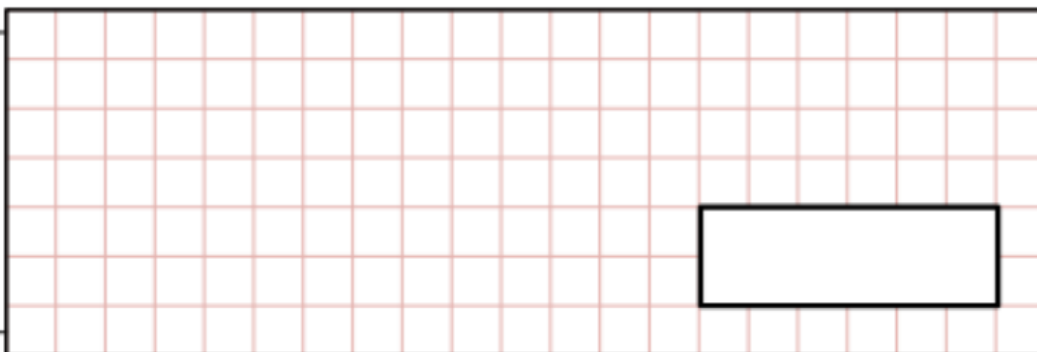


Not  
actual  
size

The perimeter of this rectangle is 50 centimetres.

Calculate the length of the rectangle.

Show your method

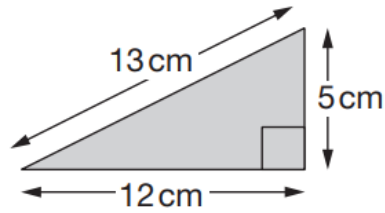


[2 marks]

22

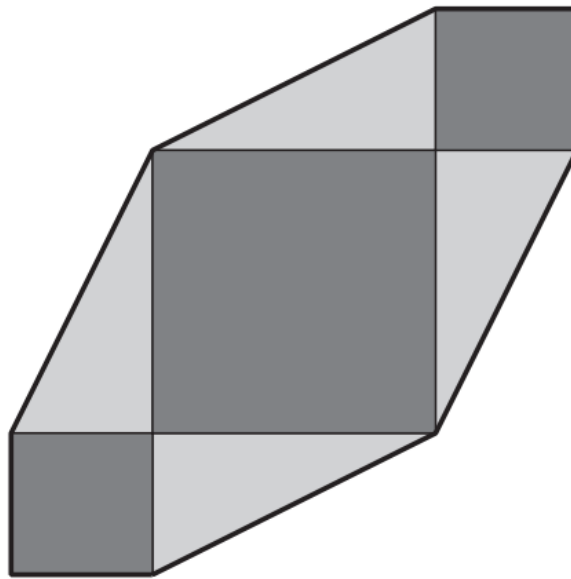
Chen has some right-angled triangular tiles.

[2015]



Not  
actual  
size

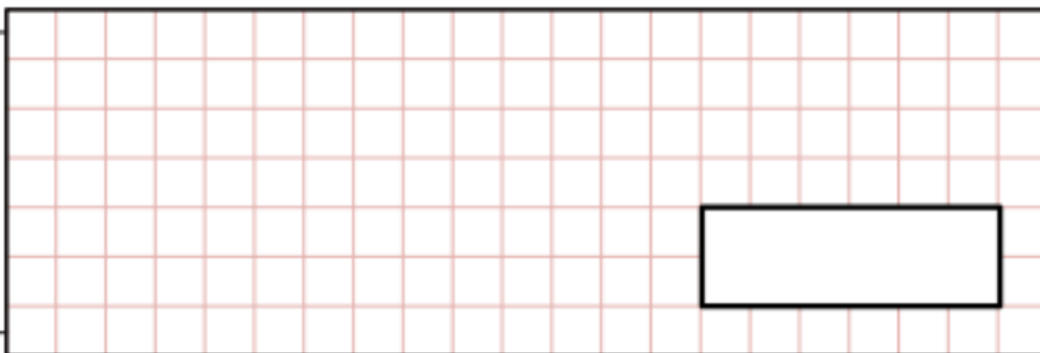
He makes this shape with four of his triangular tiles and three square tiles.



Not  
actual  
size

What is the **perimeter** of Chen's shape?

Show your method



[2 marks]

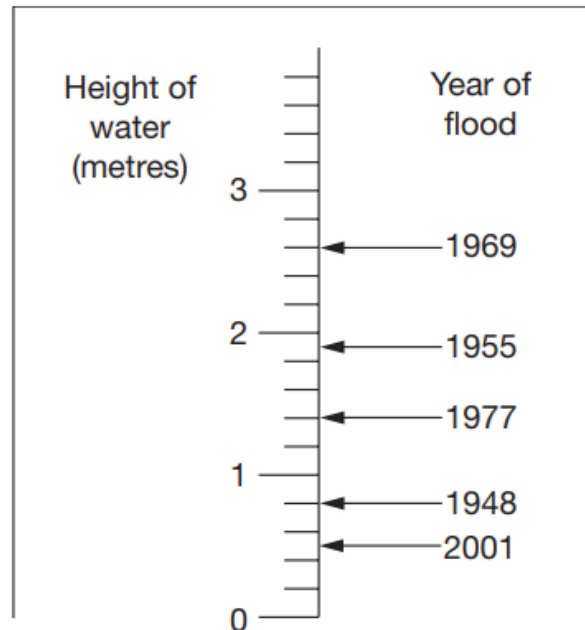
## Section Three:

# Length, Distance and Height

1

[2008]

This scale shows the dates of floods and the height of the water in the floods.



How high was the water in the 1955 flood?

  m

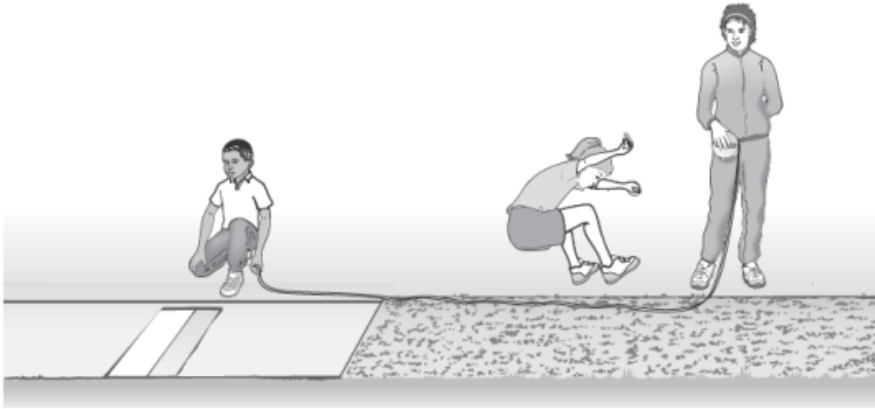
How much higher was the water in the 1969 flood than in the 1948 flood?

  m

[2 marks]

3

[2012]



Seb made a jump of two and a half metres.

Kirsty's jump was 15 centimetres longer.

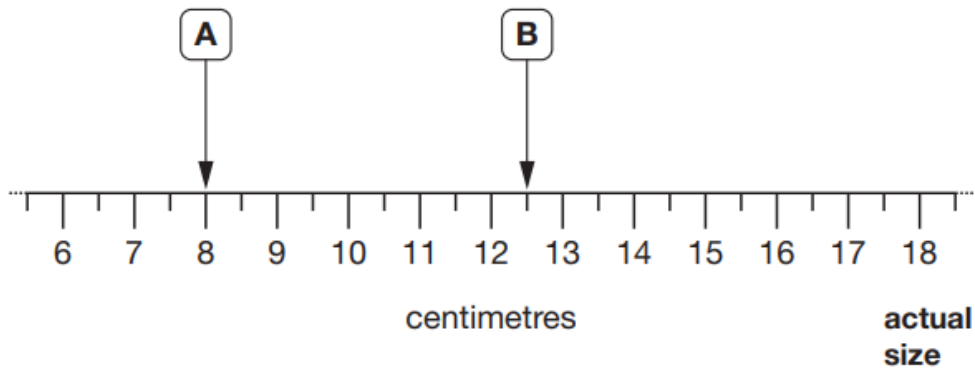
How long was Kirsty's Jump?

[1 mark]

4

Here is part of a centimetre scale, with two points marked.

[2015]



What is the distance between point **A** and point **B**?



cm

Point **C** is **twice as far** from point A as it is from point B.

On the scale above, mark one place where point C could be.

[2 marks]



18

Freddie is half as tall as his mother.

[2012]

Freddie is one metre shorter than his father.

Freddie's father is 182 centimetres tall.



How many centimetres tall is Freddie's mother?

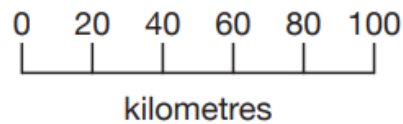
cm

[1 mark]

19

On a map, 1 cm represents 20 km.

[2017]



The distance between two cities is **250 km**.

On the map, what is the distance between the two cities?

Show your method

[2 marks]

## Section Four:

# Measuring and Drawing Objects

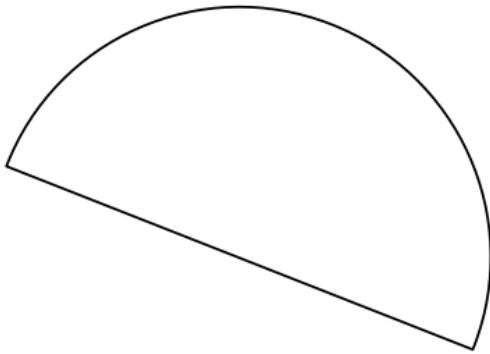
1

Here is a semi-circle.

[2012]

Measure accurately the length of the straight edge.

Give your answer in **centimetres**.



--

cm

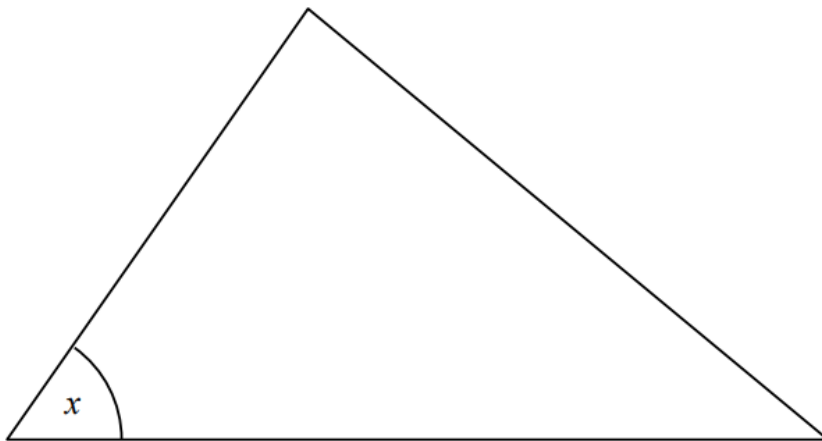
[1 mark]

2

Measure angle  $x$  accurately.

[2004]

Use a protractor (angle measurer).

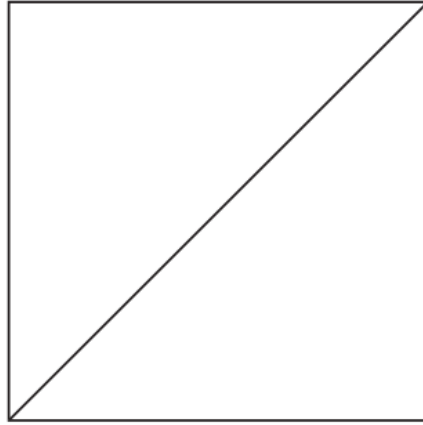


--

[1 mark]

5

[2004]



Measure accurately the length of the **diagonal** of this square.

Give your answer in **centimetres**.

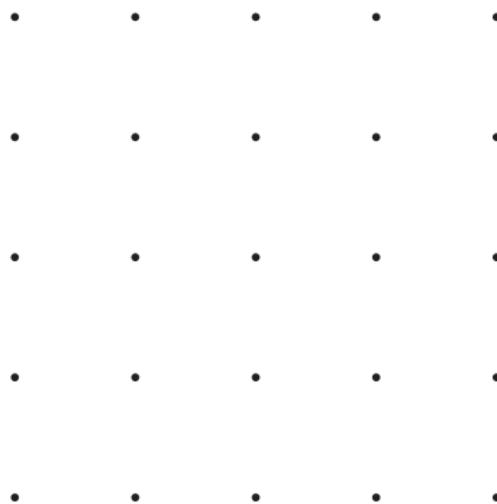



[1 mark]

6

[2016S]

Join dots on the grid to make a quadrilateral that has **3 acute** angles.

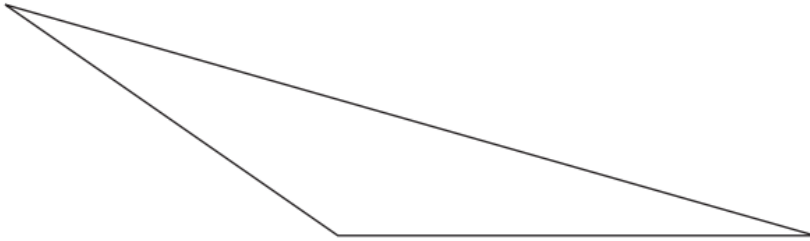


[1 mark]

8

Here is a triangle.

[2016S]



Measure the shortest side accurately, in centimetres.

cm

Measure the largest angle.

°

[2 marks]

18

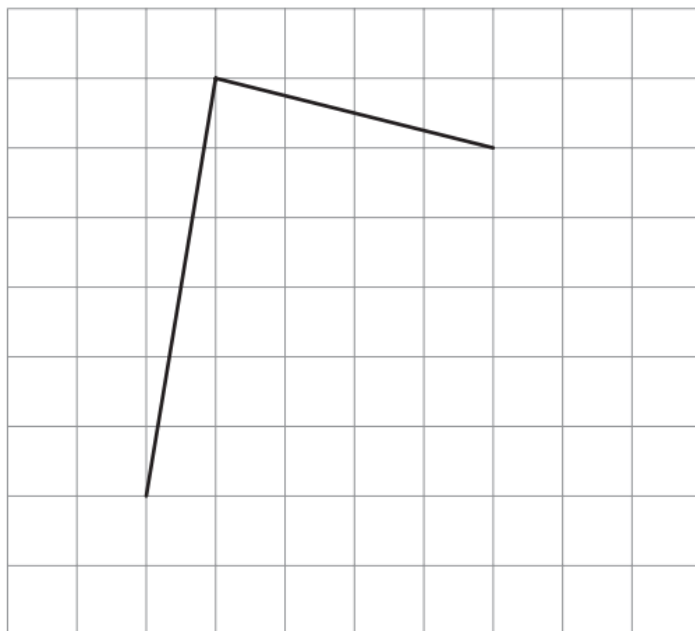
Here is a square grid.

[2011]

Two sides of a kite are drawn on the grid.

Complete the kite by drawing the two missing sides.

Use a ruler.



[1 mark]

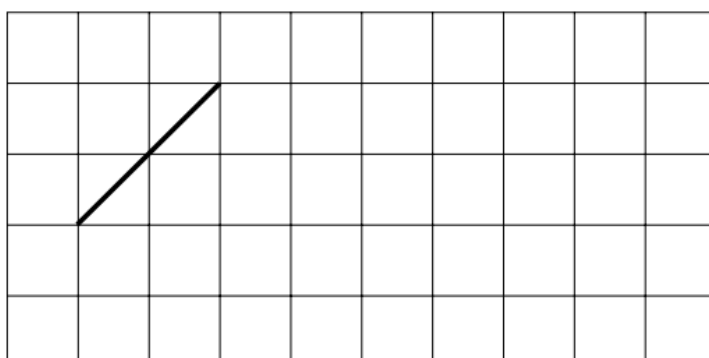
19

This is a centimetre grid.

[2001]

Draw **3 more lines** to make a **parallelogram** with an **area of  $10\text{cm}^2$**

Use a ruler.



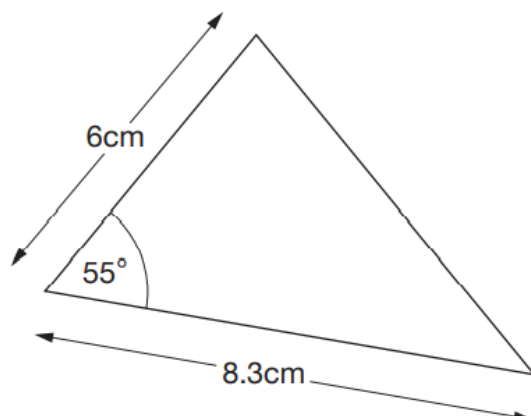
[2 marks]

**21**

Here is a sketch of a triangle.

[2014]

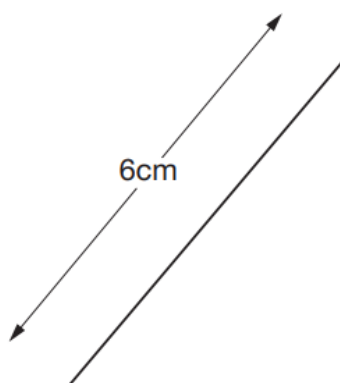
It is not drawn to scale.



Draw the full-size triangle accurately below.

Use a protractor (angle measurer) and a ruler.

One line has been drawn for you.



[2 marks]

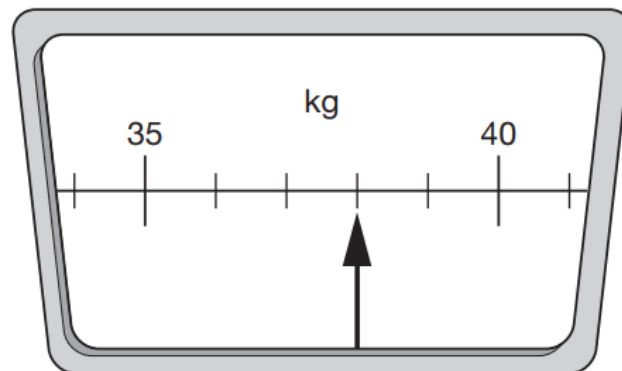
## Section Five:

# Mass

1

This scale shows how much Chen weighs.

[2014]



How much does Chen weigh?



[1 mark]

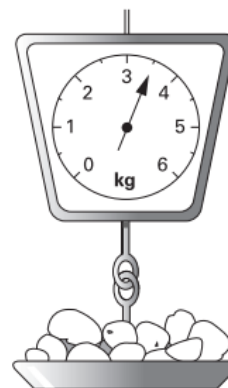
2

This table shows the weight of some fruits and vegetables.

[2002]

Complete the table.

	grams	kilograms
potatoes	3500	3.5
apples		1.2
grapes	250	
ginger		0.03



[2 marks]

10

Here are four masses.

[2011]

2  
kilograms

1  
tonne

800  
grams

$\frac{1}{2}$   
kilogram

Write the masses in order, starting with the lightest.







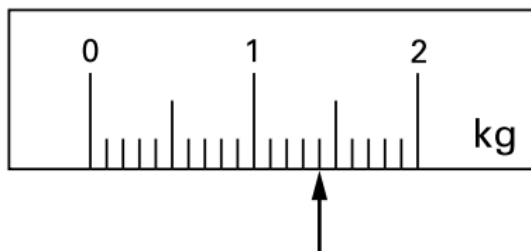
lightest

[2 marks]

11

On this scale, the arrow ( $\uparrow$ ) shows the weight of this pineapple.

[2001]



Here is a **different** scale.

Mark with an arrow ( $\uparrow$ ) the weight of the **same** pineapple.



[1 mark]

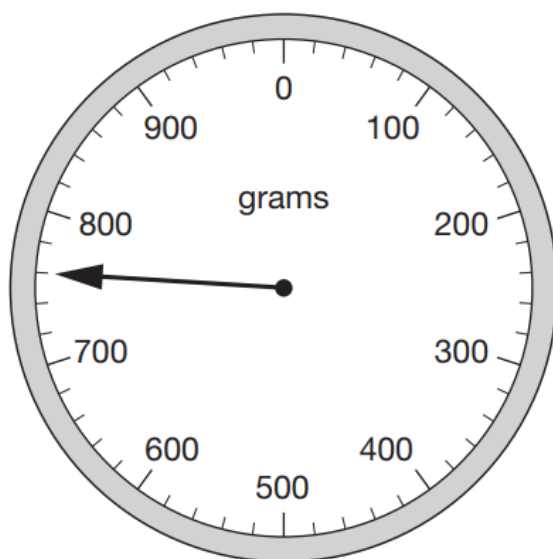


14

Joe places some apples on a weighing scale.

[2011]

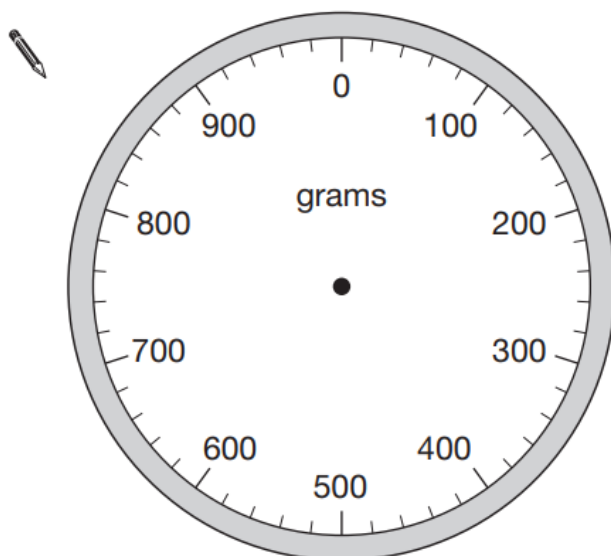
The pointer shows the mass of the apples.



He takes away one apple.

The mass goes down by 120 grams.

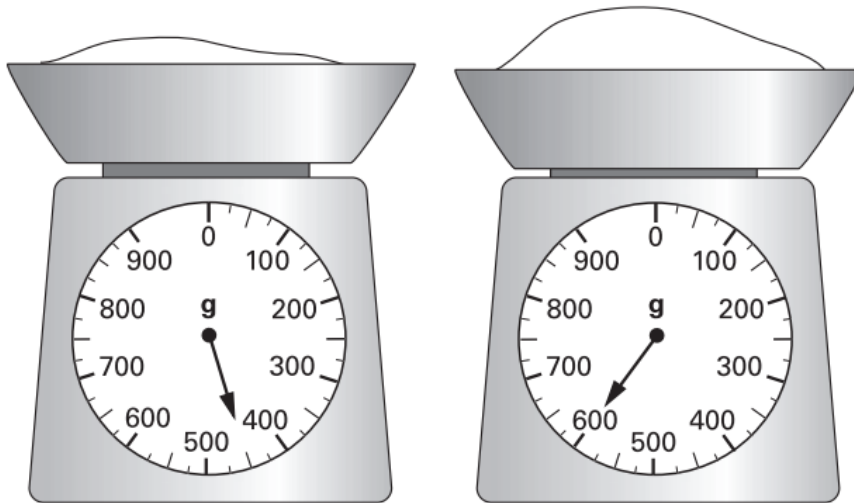
Draw the pointer in its new position on the scale below.



[1 mark]

Emily is making a cake.

She puts flour on the scales.     She then adds sugar to the flour.



Show your method

[illegible]

**One gram of gold costs £32.94**

What is the cost of **half a kilogram** of gold?

Show your method[illegible]

34 | Page

The mass of a 10p is 6.5g

The mass of a 5p coin is half the mass of a 10p coin.

The image shows five British coins. There are two 10 pence coins and three 5 pence coins. The 10 pence coins feature a lion passant guardant, and the 5 pence coins feature the Royal Coat of Arms.

Show your method

A rectangular box with a black border is positioned on the right side of the graph paper, spanning approximately from x=680 to x=970 and y=650 to y=850. It appears to be a placeholder for a drawing or diagram.

19

A packet contains 1.5 kg of oats.

Every day Maria uses 50 g of oats to make porridge.



Show your method

[illegible]

61

62

## Section Six: Volume

1

Emma makes a cuboid using 12 cubes.

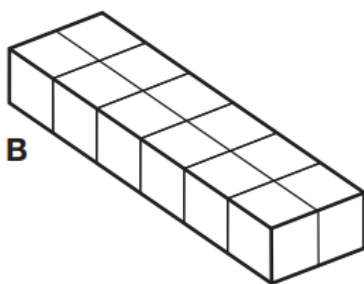
[2016]



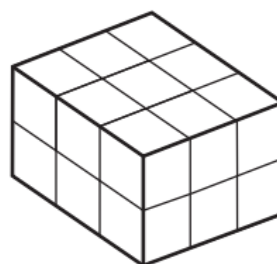
Write the letter of the cuboid that has a **different** volume from Emma's cuboid.



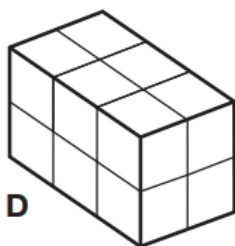
A



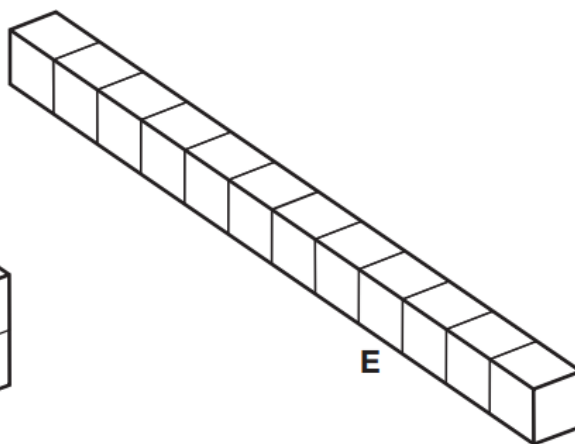
B



C



D



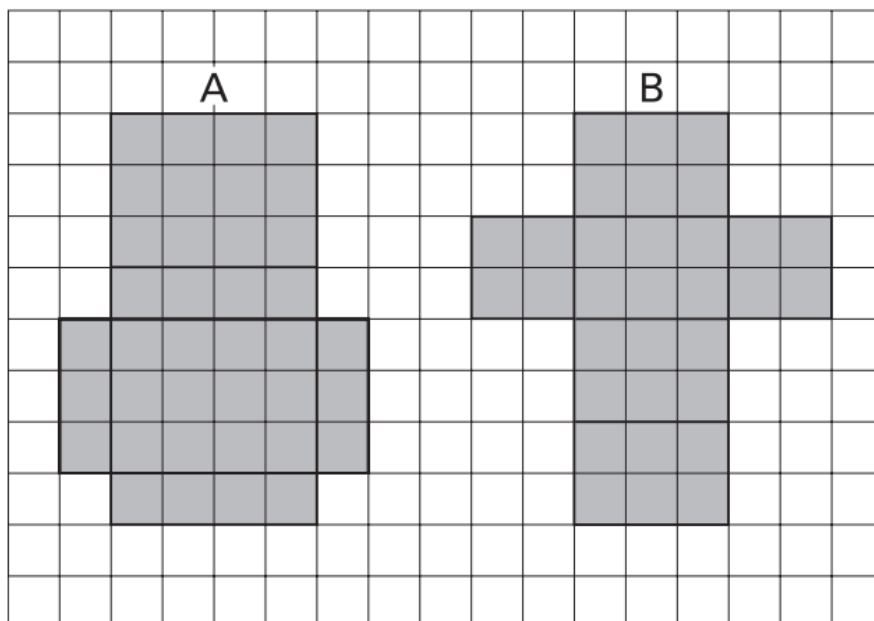
E

[1 mark]

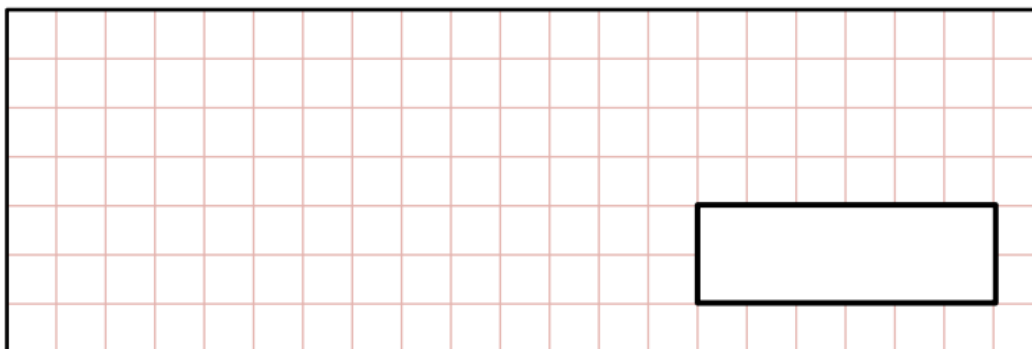
2

The squared paper shows the nets of cuboid A and cuboid B.

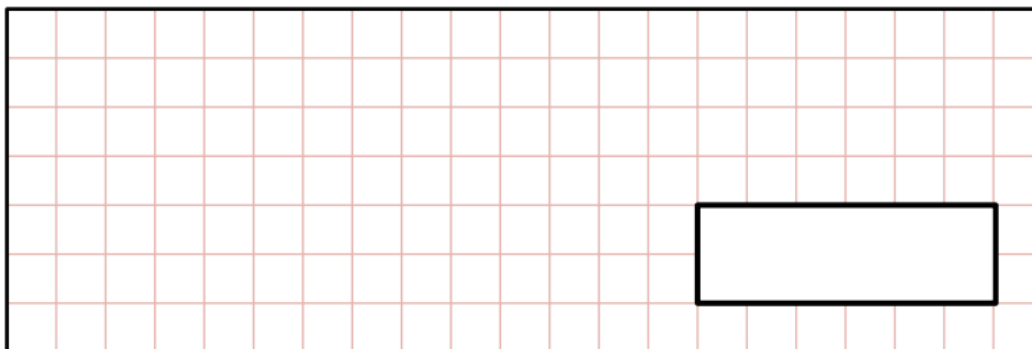
[Extra]



Calculate the volume of cuboid A.



Calculate the volume of cuboid B.

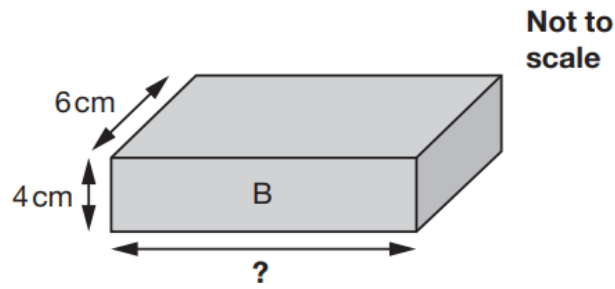
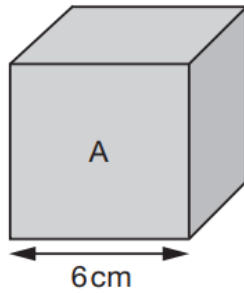


[2 marks]

6

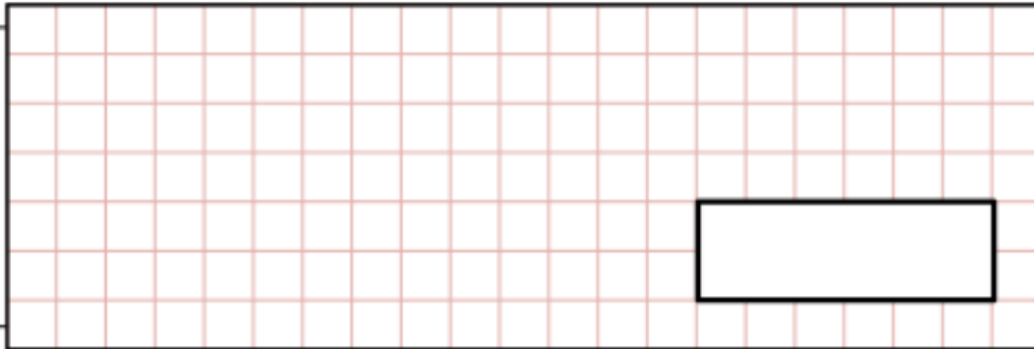
Cube A and cuboid B have the same volume.

[2017]



Calculate the missing length on **cuboid B**.

Show your method

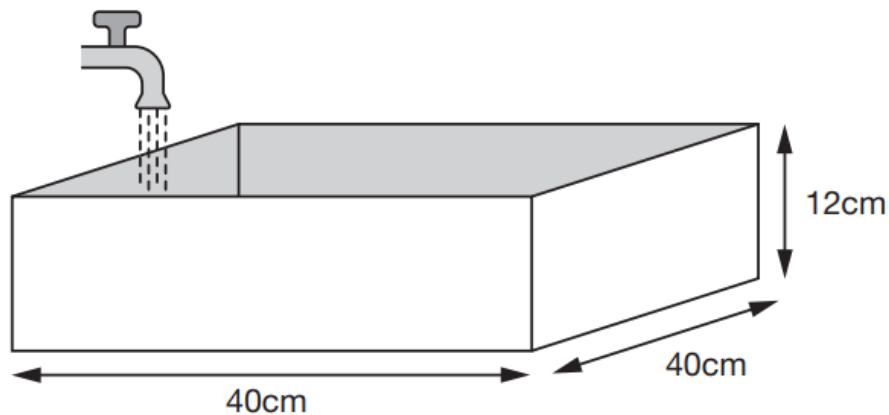


[2 marks]

9

Every second,  $300\text{cm}^3$  of water comes out of a tap into a cuboid tank.

[Extra]



Not  
actual  
size

The base of the tank is **40cm** by **40cm**

The height is **12cm**

How many seconds does it take to fill the tank?

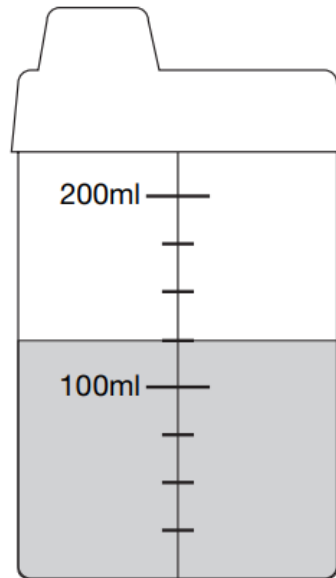
# Section Seven:

## Capacity

1

Here is a baby's drinking cup.

[2006]



How many millilitres of water are in the cup?

ml

[1 mark]

2

Which value completes the sentence? Tick (✓) the correct box

[Extra]

A **can of drink** holds about ...

☐

0.3 litres

☐

3 litres

☐

30 litres

☐

300 litres



[1 mark]

5

A bottle contains 568 millilitres of milk.

[2017]

Jack pours out **half a litre**.



How much milk is left?

[1 mark]

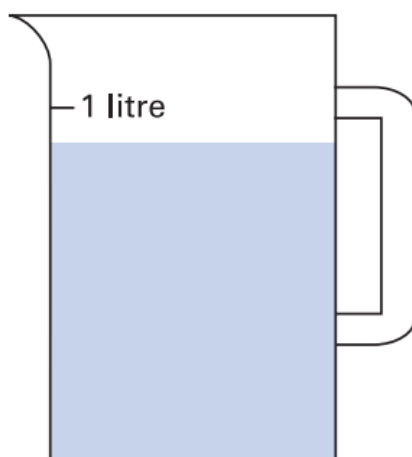
6

Sophie poured some water out of a litre jug.

[Extra]

Look how much is left in the jug.

Estimate how many millilitres of water are left.



ml

[1 mark]



7

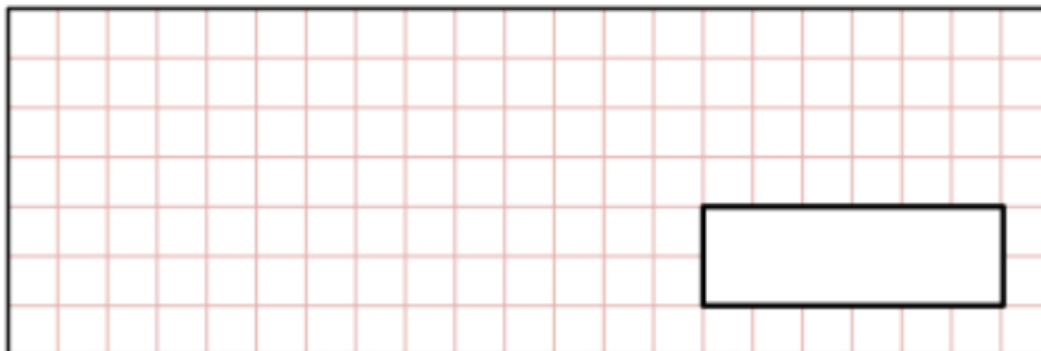
Megan wants to fill a bucket with water.

[2013]

A bucket holds 6 litres.

A jug holds 500 millilitres.

How many jugs of water does Megan need to fill an empty bucket?



[1 mark]

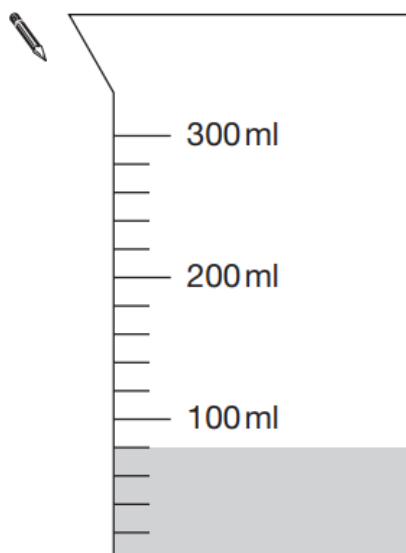
8

Hassan has a jug with some water in it.

[2007]

He adds another 140 millilitres of water.

Draw a line to show the new level of water.



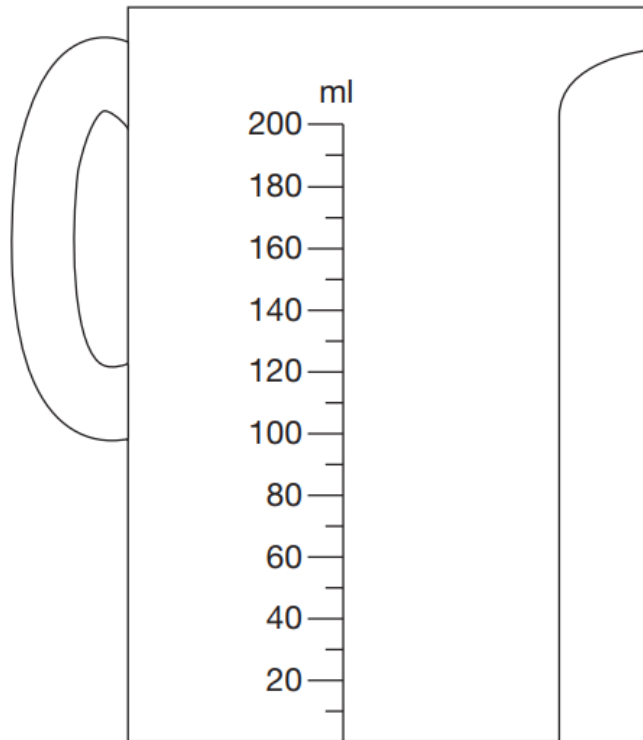
[1 mark]

9

Chen pours 165 millilitres of milk into a measuring jug.

[2016S]

Draw an arrow on the jug to show the level of the milk.



[1 mark]

10

Circle **one** amount to make the sentence correct.

[Extra]



A tea cup is likely to hold about



15 ml

150 ml

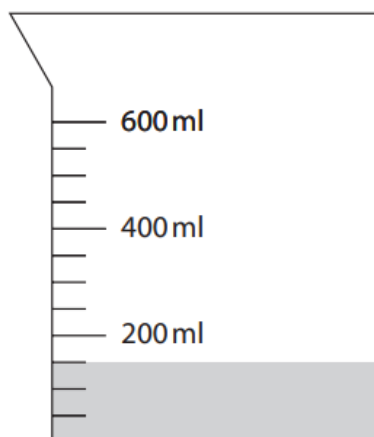
1500 ml

[1 mark]

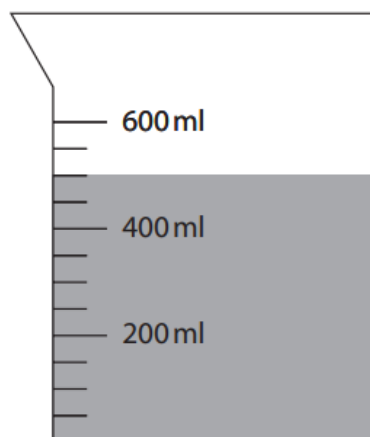
12

One jug contains water and the other jug contains oil.

[2015]



Water



Oil

How much **more** oil is there than water?

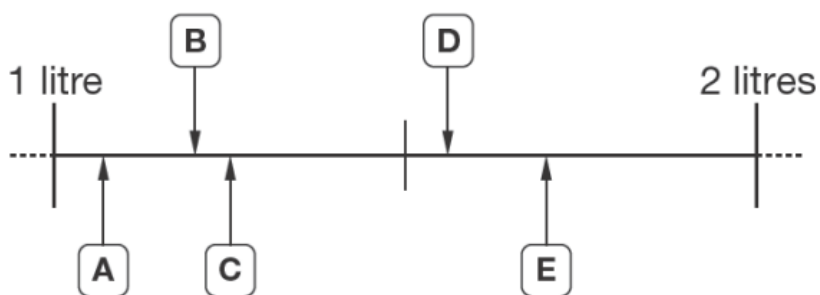
ml

[1 mark]

16

Here are five letters on a scale.

[2012]



Match each letter to one of the capacities in the list below.

1200 *ml*☐1.7 *l*☐ $1\frac{1}{4}$  *l*☐1560 *ml*☐1.07 *l*☐

[2 marks]

78  
79

These are some prices in a fish and chip shop.

79

1

1

1

£

1

1

1

1

80

80

2

A group of friends earns £80 by washing cars.

[2017]

They share the money **equally**.

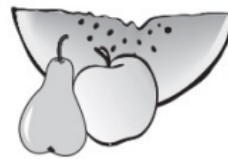
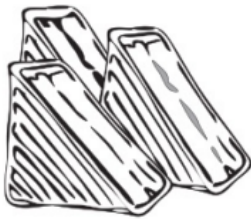
They get £16 each.

How many friends are in the group?

[1 mark]

3

[2004]



These are the prices of sandwiches, drinks and fruit.

Sandwiches	Drinks	Fruit
cheese £1.45	milk 55p	apple 15p
tuna £1.70	cola 45p	pear 20p
salad £1.20	juice 65p	melon 25p

Shereen buys a **tuna** sandwich, **milk** and a **pear**.

How much does she pay?




Mike has 80p to spend on a **fruit** and a **drink**.

What **two** things can he buy for exactly **80p**?



..... and .....

[2 marks]

6

The children at Farmfield School are collecting money for charity.

[2017]

Their target is to collect £360

So far they have collected £57.73

How much **more** money do they need to reach their target?

£

[1 mark]

Olivia buys three packets of nuts.

Three identical bags of NUTS are shown side-by-side. Each bag is grey with a black oval label in the center containing the word "NUTS" in white capital letters.

This is her change.



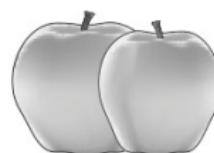
Show your method

[illegible]

11

Liam buys **two** apples.

He pays with a £1 coin and gets 64p change.



Show your method

[illegible]

48 | Page



22

Ally and Jack buy some stickers.

[2017]



**Pack of 12 stickers**  
**£10.49**



**12 stickers**  
**99p each**

Ally buys a pack of 12 stickers for £10.49

Jack buys 12 single stickers for 99p each.

How much more does Jack pay than Ally?

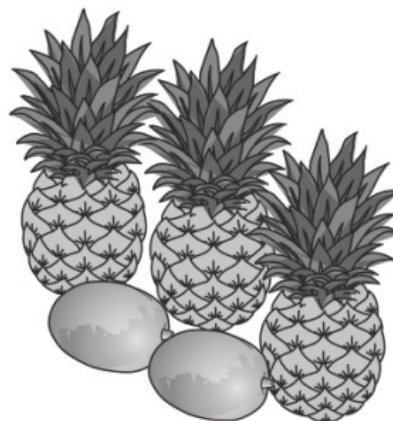
Show your method

[illegible]

[2 marks]

3 pineapples cost the same as 2 mangoes.

One mango costs £1.35



Show your method

[illegible]

[2 marks]

Large pizzas cost £8.50 each.

Small pizzas cost £6.75 each.

Five children together buy one large pizza and three small pizzas.

They share the cost equally.

Show your method

A blank sheet of graph paper with a light gray grid pattern. The grid consists of small squares. On the right side of the page, there is a rectangular box with a black border, which is currently empty. This box is likely intended for a student's name or other identifying information.

[2 marks]

29

Amina posts three large letters.

[2017]

The postage costs the same for each letter.

She pays with a £20 note.

Her change is £14.96

What is the cost of posting **one** letter?

Show your method

[2 marks]

[2011]



Tickets for a school play cost £2.75 each.

Dev sold 23 tickets.

How much ticket money did Dev collect?



£

Holly collected £77 altogether from selling tickets.

How many tickets did she sell?

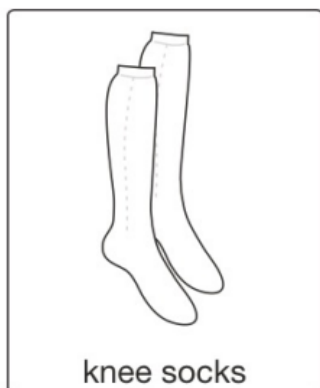


[2 marks]

11

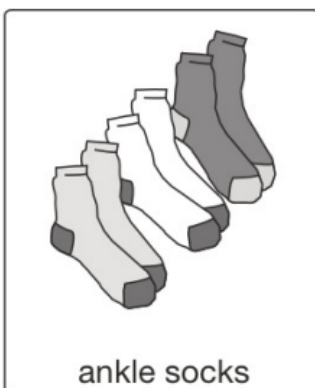
[2015]

A shop sells pairs of socks.



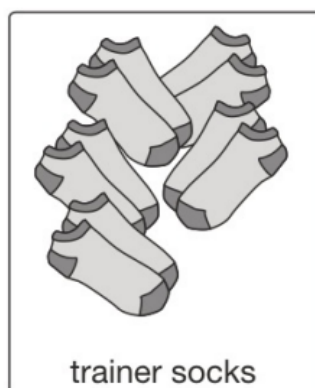
knee socks

**1 pair** for £5.45



ankle socks

**3 pairs** for £7.50




trainer socks

**5 pairs** for £8.50

Kirsty buys 1 pair of knee socks and 3 pairs of ankle socks.

She pays with a £20 note.

How much change does she get?



Amy spends £25.50 on trainer socks.

How many **pairs** of trainer socks does she get?

 **pairs**


[3 marks]

[2016S]

A bag of 4 oranges costs £1.80



Show your method

A rectangular box with a black border, positioned on the right side of the grid. It is empty and appears to be a placeholder for a drawing or diagram.

[2 marks]

22

Miss Mills is making jam to sell at the school fair.

[2016]

Strawberries cost £7.50 per kg.

Sugar costs 79p per kg.

10 glass jars cost £6.90

She uses 12 kg of strawberries and 10 kg of sugar to make 20 jars full of jam.

Calculate the total cost to make 20 jars full of jam.

Show your method

[3 marks]

23

Lara had some money.

[2016]

She spent £1.25 on a drink.

She spent £1.60 on a sandwich.

She has **three-quarters** of her money left.

How much money did Lara have to **start with**?

Show your method

[2 marks]

## Section Nine: Handling Money

4

Here are five coins.

[2009]



Stefan takes two coins and Lara takes the other three coins.

Stefan takes **15p more** than Lara.

Tick (✓) the two coins Stefan takes.

[1 mark]

5

Callum saves 20p coins.

[Extra]

He needs £5

So far, he has saved £2.80

How many more 20p coins does he need to make £5?

[1 mark]



8

Mina and Seb share these coins so that they each have the **same** amount of money.

[2012]



Mina chooses her coins first.

Seb takes the rest of the coins.

Which coins could Mina choose?




---

[1 mark]

14

Megan has 7 coins that make one pound.

[2014]

The coins are of **only two** different kinds.

What are the 7 coins?



--	--	--	--	--	--	--

[1 mark]

18

Liam has five coins.

[2015]

Three of the coins add up to **30p**.

Three of the coins add up to **40p**.

All five coins add up to **£1**

What are the coins that Liam has?



[1 mark]

# Section Ten:

## Time and Dates

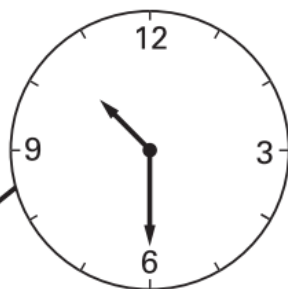
1

Match each clock to the correct time.

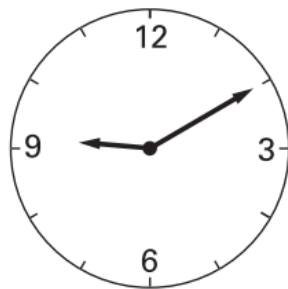
[2004]

One has been done for you.

1:45



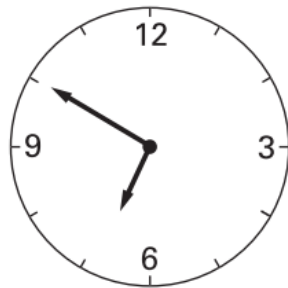
half past ten



ten to seven



9:10

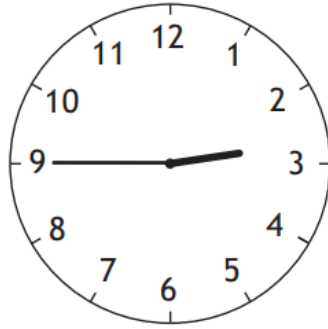


[2 marks]

2

A clock shows this time twice a day.

[2016]



Tick the two digital clocks that show this time.

03:45

02:45

09:45

21:45

14:45

[1 mark]

3

Stefan's watch shows five minutes past nine.

[2016S]

The watch is twelve minutes fast.



What is the correct time?

[1 mark]

9

What is 444 minutes in hours and minutes?

[2016S]

hours

minutes

[1 mark]

12

Write the missing numbers.

[2017]

60 months =

years

72 hours =

days

84 days =

weeks

[2 marks]

**18**

[2016]

Complete each sentence using a number **from the list below**.

120      240      600      1,440      3,600      6,000

There are

seconds in an hour.

There are

minutes in a day.

[2 marks]

**19**

[2015]

Liam hires a bike.

He has to return it by 3 pm.

The time is 2:25 pm.



How many minutes has he got left?

 minutes

Amy hires a bike for 45 minutes.

She takes the bike out at 3:30 pm.

At what time must she return the bike?

 pm

[2 marks]

