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Answer **all** questions in the spaces provided.

***1** Here are the readings from a water meter.

Meter reading	November 2012	3587 m^3
Meter reading	August 2012	3563 m^3

1 (a) Do a subtraction to work out the volume of water used.

.....

Answer ..... m^3 *(1 mark)*

1 (b) Water costs £1.20 for each cubic metre (m^3).

Work out the cost of water used.

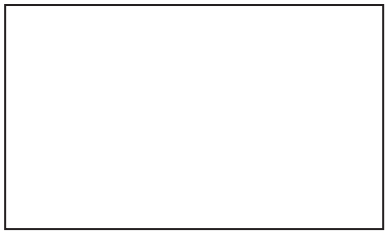
.....

Answer £ ..... *(2 marks)*

Turn over for the next question

3

2 The rectangle is drawn accurately.



Work out the perimeter of the rectangle.

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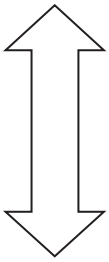
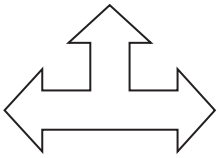
Answer ..... cm *(3 marks)*

3 For each shape write down the number of lines of symmetry and the order of rotational symmetry.

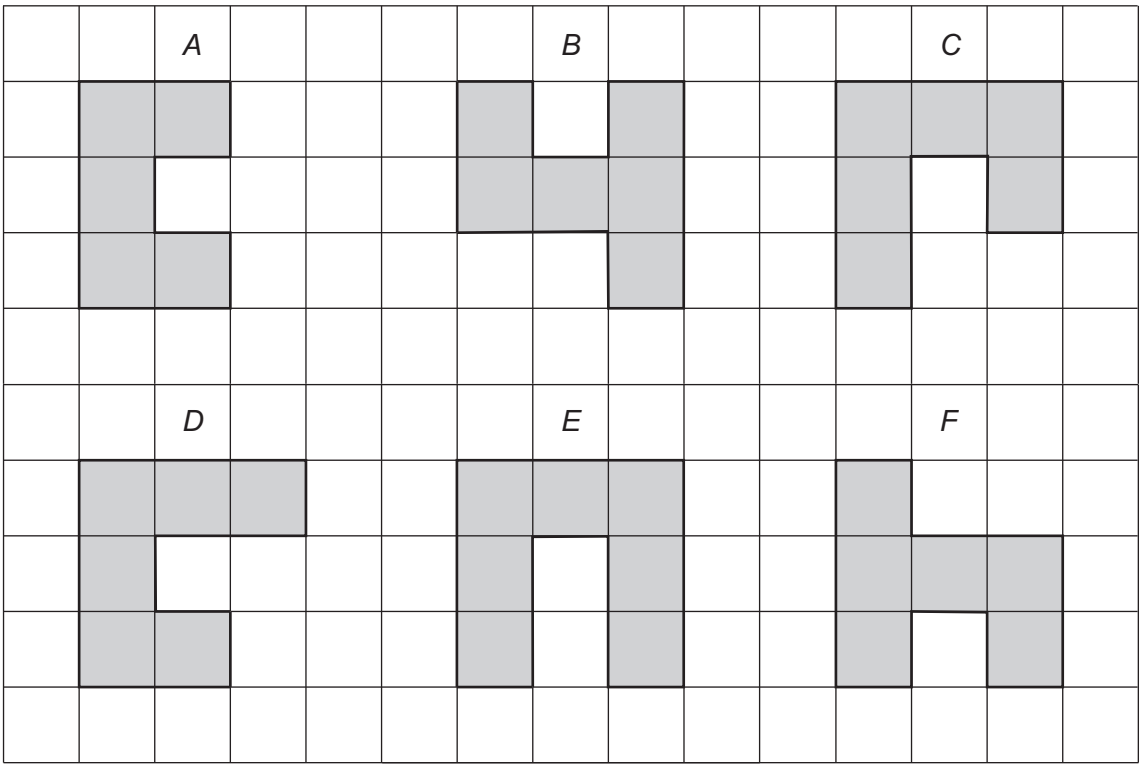
	Number of lines of symmetry	Order of rotational symmetry
	.....	.....
	.....	.....
	.....	.....

(4 marks)

Turn over for the next question

7

4 Here are six shapes.



4 (a) Which shape is congruent to shape *B*?

Answer ..... *(1 mark)*

4 (b) Name **two** other congruent shapes.

Answer ..... and ..... *(1 mark)*

5 The timetable shows flight times from Manchester to Rome.

✈ shows a flight on that day.

Depart Manchester	Arrive Rome	Mon	Tues	Wed	Thurs	Fri	Sat	Sun
06:50	10:50	✈		✈		✈	✈	✈
13:10	17:10		✈					
14:00	18:00				✈			

5 (a) On which day does the flight arrive in Rome at 5.10 pm?

Answer ..... *(1 mark)*

5 (b) The times on the timetable are local times.
When it is 9 o'clock in Manchester, it is 10 o'clock in Rome.

How long is each flight?

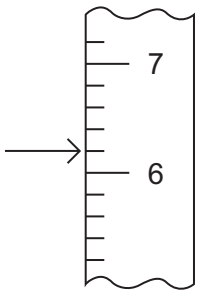
.....

Answer ..... hours *(2 marks)*

Turn over for the next question

5

6 (a) Robin says that the arrow is pointing to 6.1



He is **not** correct.

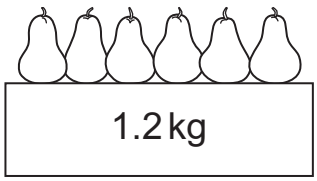
What is his mistake?

.....

.....

(1 mark)

6 (b) Six pears of equal size are weighed on a digital scale.



Estimate the weight of one pear.
Give your answer in grams.

.....

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.....

Answer ..... grams *(3 marks)*

*7 The work in an office takes 200 hours to complete every week.
Each person in the office works 35 hours a week.

7 (a) What is the smallest number of people needed to complete the work?

.....

.....

Answer ..... *(3 marks)*

7 (b) The number of hours each person works is increased to 40 hours a week.

Does the office still need the same number of people?
You **must** show your working.

.....

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(2 marks)

8 (a) A man is facing North.
He turns 90º clockwise.

Which way is he facing now?

Answer ..... *(1 mark)*

8 (b) A woman is facing South.
She turns clockwise to face West.

What fraction of a turn has she completed?
Give your answer in its simplest form.

.....

Answer ..... *(2 marks)*

12

9 A builder uses this method to work out the cost (£) of building an extension.

- Work out the floor area in square metres
- Multiply this answer by 1500

The diagram shows a rectangular floor.

Not drawn accurately

Work out the cost of building an extension on this floor.

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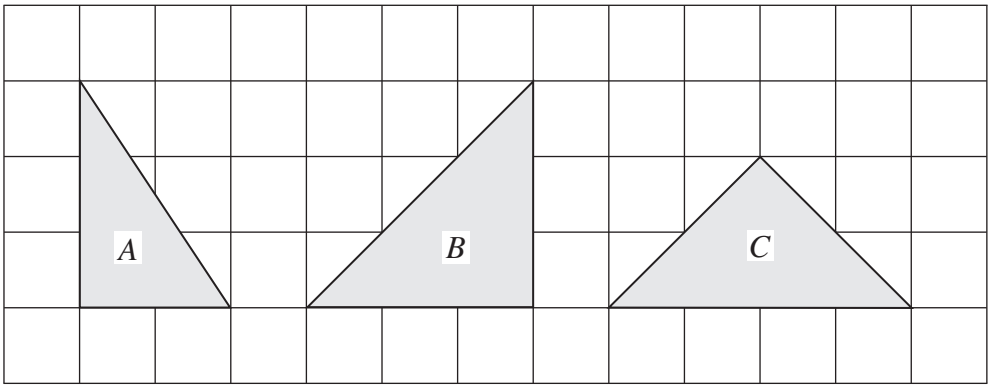
Answer £ ..... *(3 marks)*

10 Three triangles are shown on the centimetre grid.



10 (a) Which triangle is **not** isosceles?

Answer ..... *(1 mark)*

10 (b) Work out the area of the triangle with the greatest area.
State the units of your answer.

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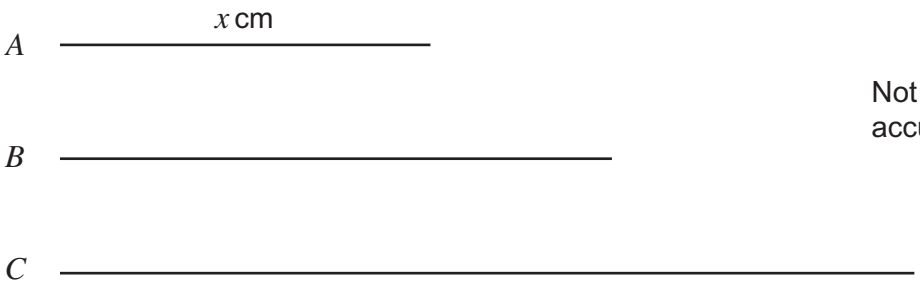
Answer ..... *(3 marks)*

7

11 The diagram shows three rods A, B and C.



Not drawn accurately

The length of A is x cm.
The length of B is 3 cm more than the length of A.
The length of C is twice the length of A.

11 (a) Write down an expression for the length of B.

Answer ..... cm *(1 mark)*

11 (b) Write down an expression for the length of C.

Answer ..... cm *(1 mark)*

11 (c) The length of C is 4 cm more than the length of B.

Work out the value of x.

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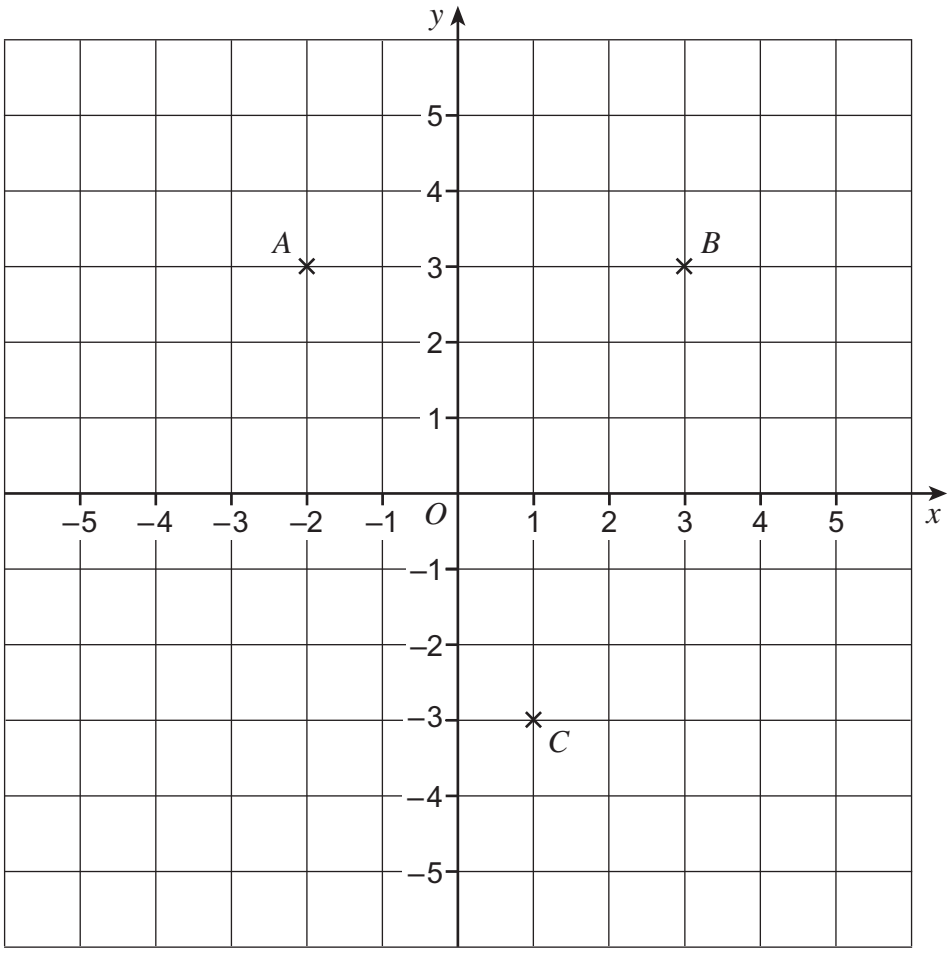
Answer ..... cm *(3 marks)*

12 Points A, B and C are shown on the centimetre grid.



12 (a) Write down the coordinates of A.

Answer (..... , ...) *(1 mark)*

12 (b) Plot a point D so that $ABCD$ is a parallelogram.

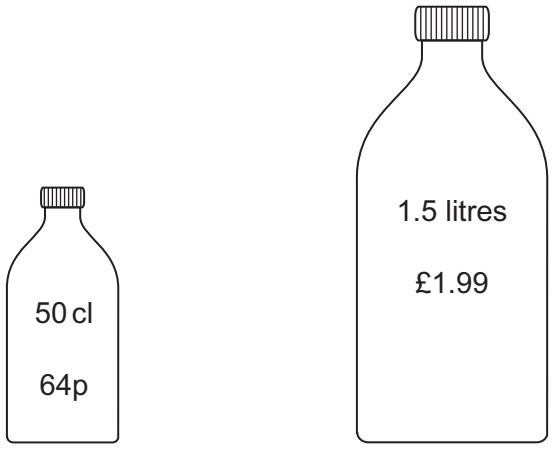
(1 mark)

12 (c) Write down the coordinates of D.

Answer (..... , ...) *(1 mark)*

8

***13** The diagram shows two bottles of the same drink.



You are given that 1 litre = 100 cl

13 (a) Work out the cost per litre for the small bottle.

.....

Answer £ ..... *(2 marks)*

13 (b) Which bottle is better value for money?
You **must** show your working.

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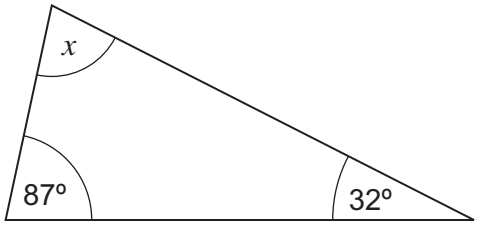
Answer ..... *(3 marks)*

14 Work out the value of x.



Not drawn accurately

.....

.....

Answer ..... degrees *(2 marks)*

15 Three angles are in the ratio 2 : 3 : 7
The smallest angle is 60°.

Show that these three angles will fit together at a point with no gaps.

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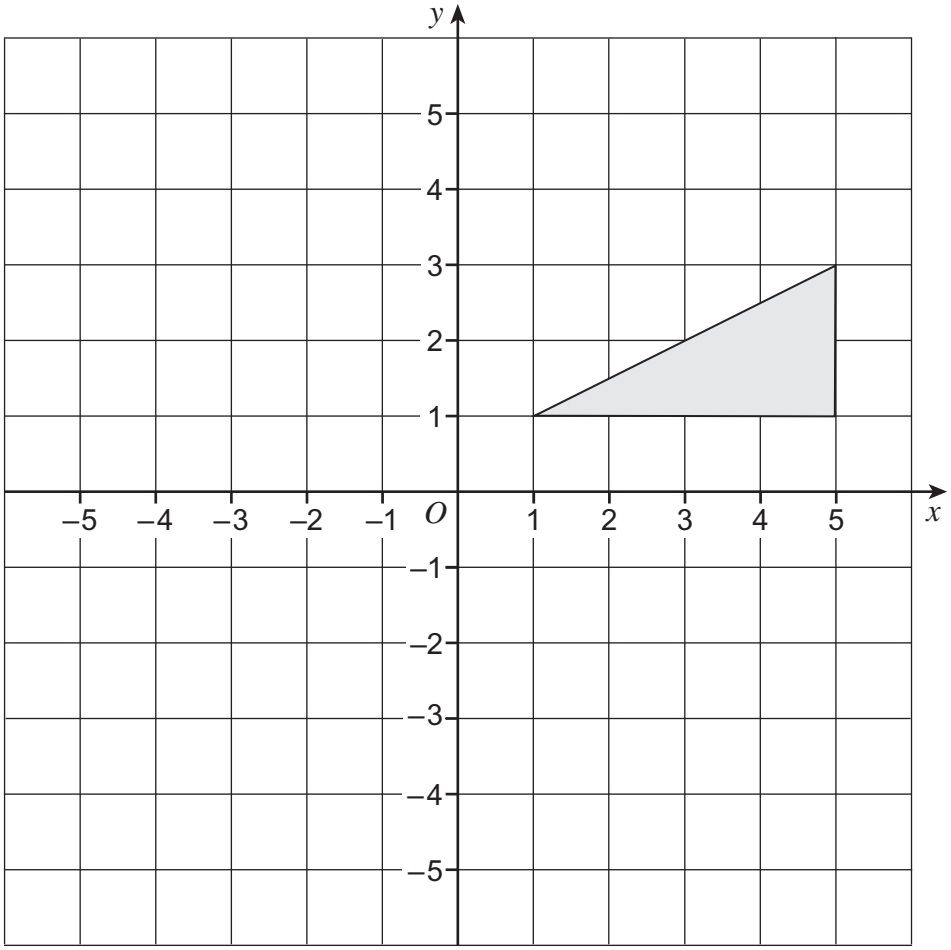
(3 marks)

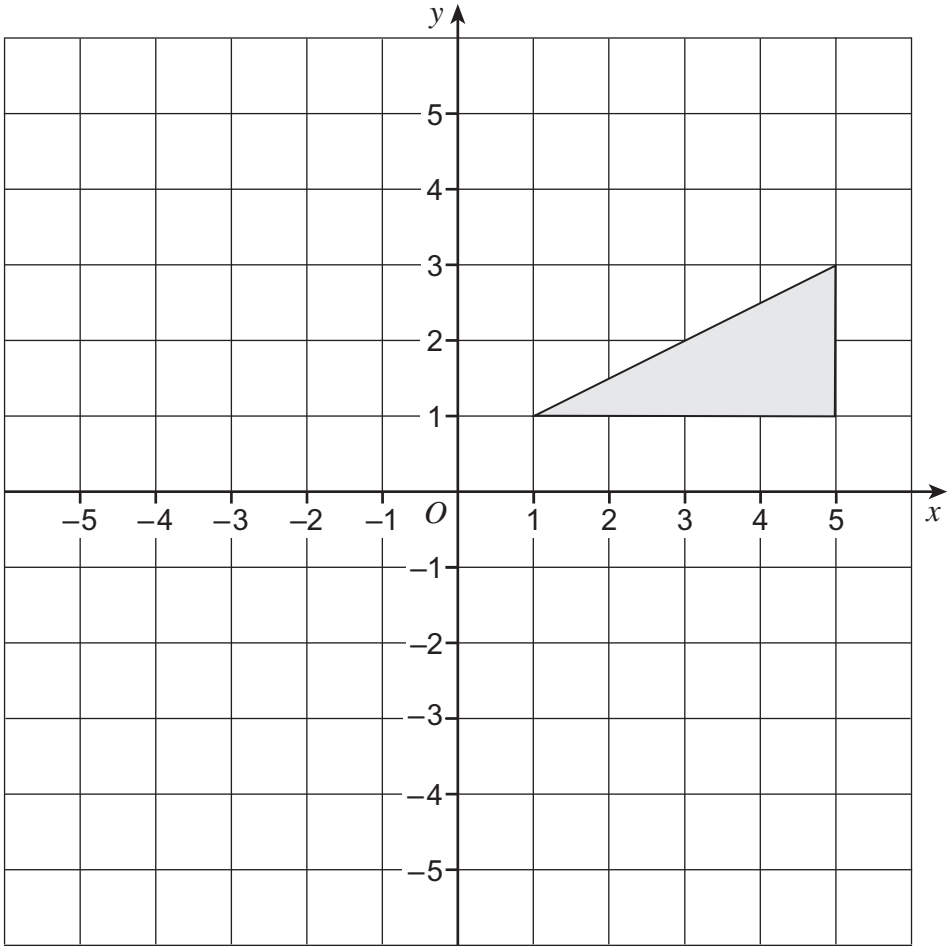
10

16 (a) Reflect the triangle in the x-axis.



(1 mark)

16 (b) Rotate the triangle through 180º about the origin.

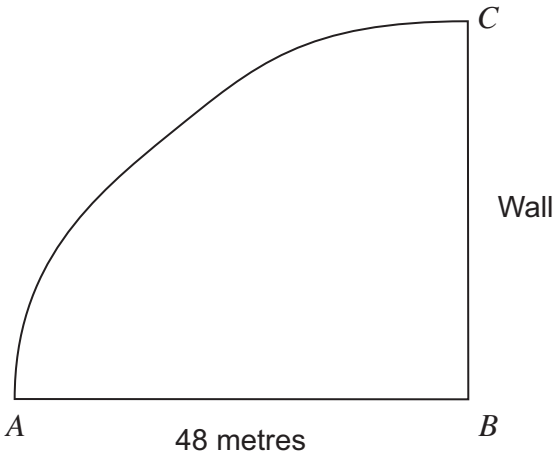


(2 marks)

Turn over for the next question

3

17 Here is a scale drawing of a park.
A to B measures 48 metres.



A wall is to be built from B to C.
250 bricks are needed for each metre of wall.

Work out the total number of bricks needed to build the wall.

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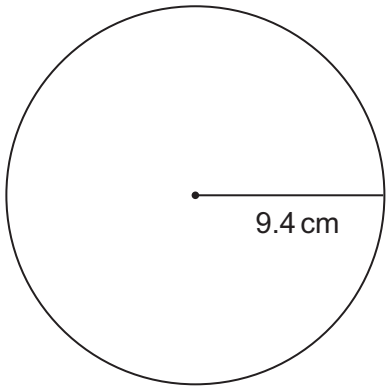
Answer ..... *(5 marks)*

18 A circle has radius 9.4 cm.



Not drawn accurately

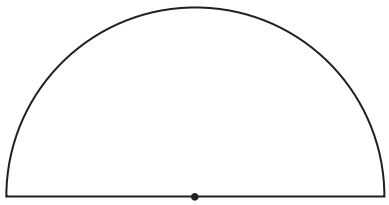
18 (a) Work out the circumference of the circle.

.....

.....

Answer ..... cm *(2 marks)*

18 (b) A semicircle has radius 9.4 cm.



Not drawn accurately

Use your answer to part (a) to work out the perimeter of the semicircle.

.....

.....

Answer ..... cm *(2 marks)*

9

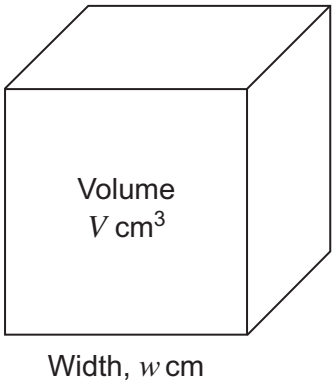
19 The diagram shows a square piece of card.

19 (a) Write down a formula connecting A and w.

.....

Answer ..... *(1 mark)*

19 (b) This diagram shows a cube.



Write down a formula connecting V and w.

.....

Answer ..... *(1 mark)*

19 (c) The area of one face of a cube is 20 cm^2.

Work out the volume of the cube.

.....

.....

.....

Answer ..... cm^3 *(3 marks)*

Turn over for the next question

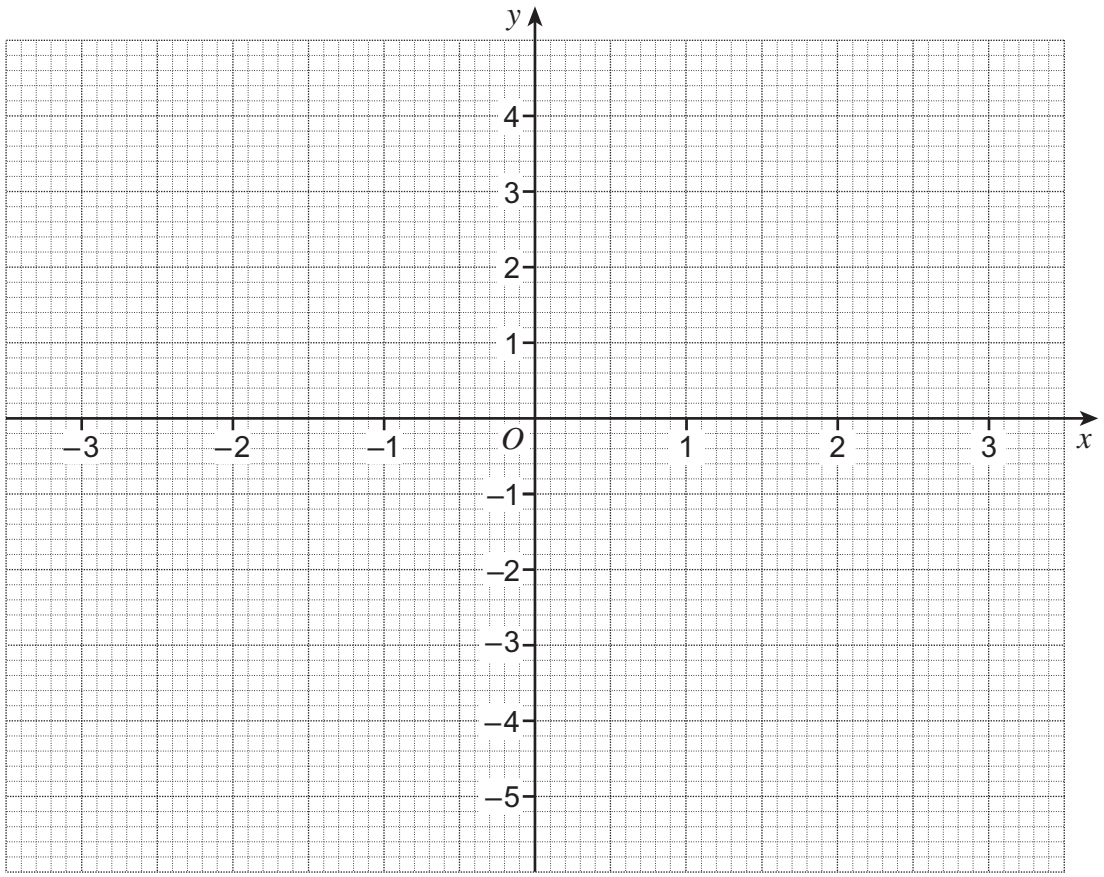
5

20 (a) Complete the table of values for $y = x^2 - 5$

x	–3	–2	–1	0	1	2	3
y		–1	–4	–5		–1	4

(2 marks)

20 (b) Draw the graph of $y = x^2 - 5$ for values of x from –3 to 3.

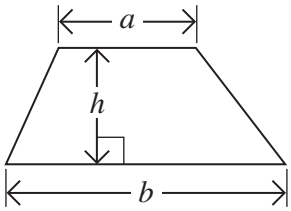


(3 marks)

20 (c) Write down the values of x when $y = 0$

Answer ..... and ..... *(2 marks)*

21 In the trapezium, a = 6.5 m, b = 8.3 m and h = 3.2 m



Not drawn accurately

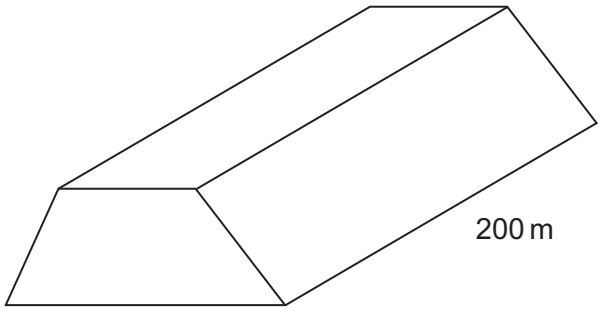
21 (a) Work out the area of the trapezium.

.....

.....

Answer ..... m^2 *(2 marks)*

21 (b) The trapezium is the cross-section of a tunnel.
The tunnel is 200 metres long.



Work out the volume of the tunnel.

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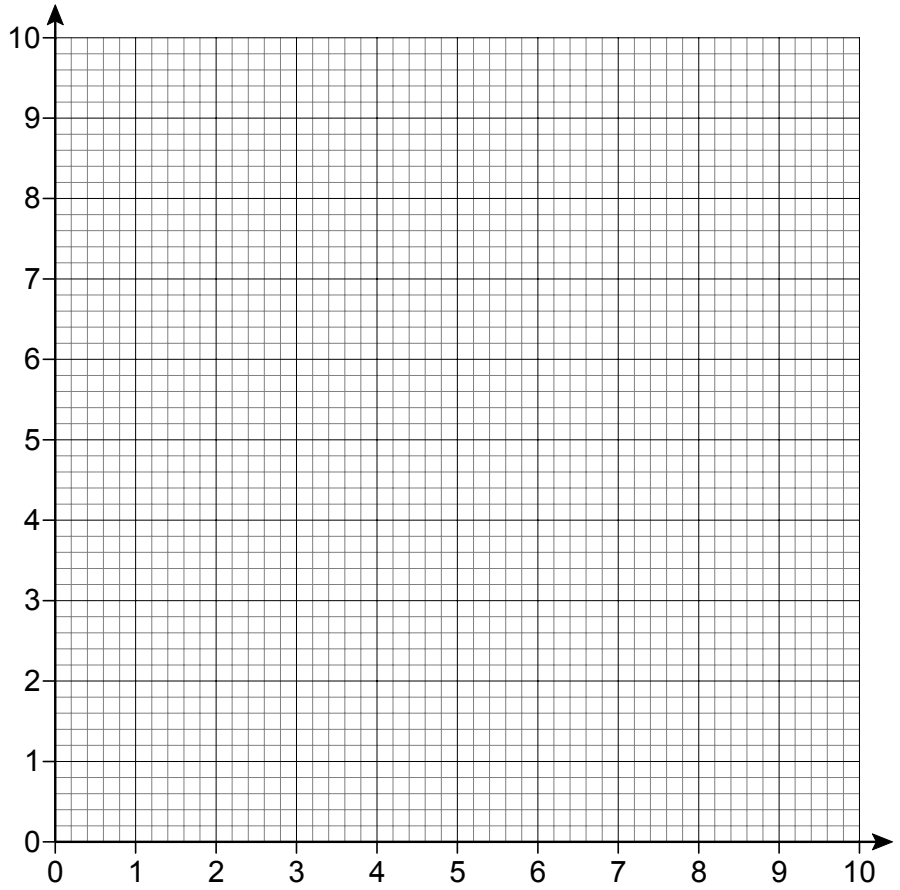
Answer ..... m^3 *(2 marks)*

END OF QUESTIONS

Answer **all** questions in the spaces provided.

1 (a) Here is a centimetre grid.



Plot four points *A, B, C* and *D* on the grid to make a rectangle *ABCD* of length 6 cm and width 4 cm.

(2 marks)

1 (b) Tick whether each statement is always true, sometimes true or never true.

1 (b) (i) Rectangles with an area of 24 cm^2 have a length of 6 cm.

☐ Always true ☐ Sometimes true ☐ Never true *(1 mark)*

1 (b) (ii) Rectangles with a perimeter of 20 cm have a length of 12 cm.

☐ Always true ☐ Sometimes true ☐ Never true *(1 mark)*

1 (b) (iii) Rectangles with length 6 cm and width 4 cm have area 24 cm^2 and perimeter 20 cm.

☐ Always true ☐ Sometimes true ☐ Never true *(1 mark)*

5

✳**2** Greg goes shopping with £20.
He spends £5.60 on his lunch.
He needs £1.30 for his bus fare.
He sees this advert for shoes.

Shoes

Normal Price £15

Sale price 10% off normal price

Does he have enough money to buy them?

You **must** show your working

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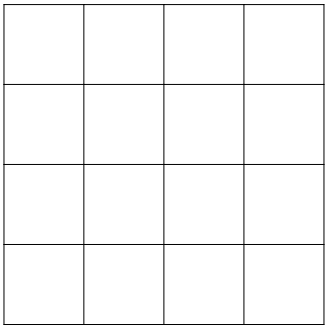
(4 marks)

3 (a) How many sixteenths are there in $\frac{3}{4}$?

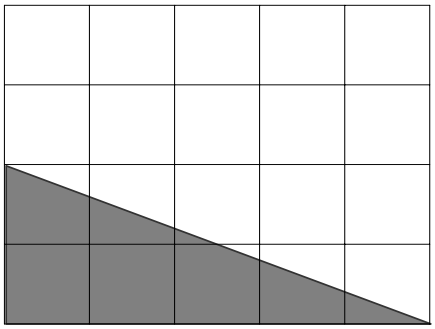
You may use this grid to help you.



.....

Answer ..... *(2 marks)*

3 (b) A triangle on this grid is shaded.



What percentage of the grid is shaded?

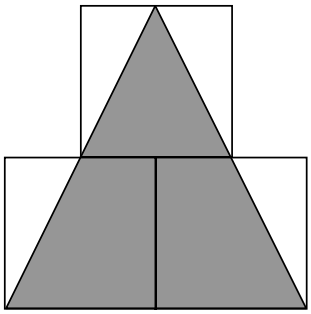
.....

.....

.....

Answer ..... % *(2 marks)*

3 (c) This shape consists of 3 equal squares.



What fraction of the shape is covered by the triangle?

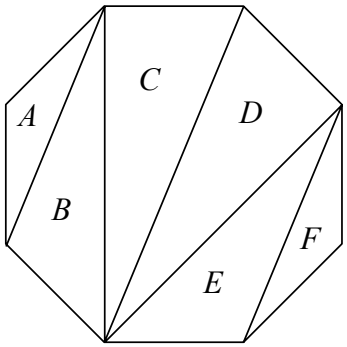
.....

.....

Answer ..... *(2 marks)*

10

4 A regular octagon is split into triangles A, B, C, D, E and F.



4 (a) Complete this list of pairs of congruent triangles.

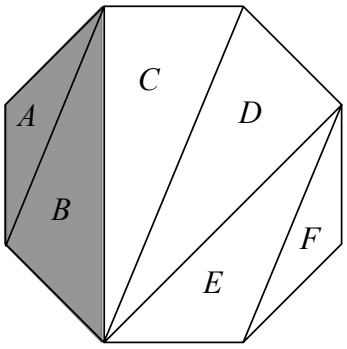
C and D

B and .....

A and .....

(2 marks)

4 (b) Triangles A and B make a trapezium as shown.

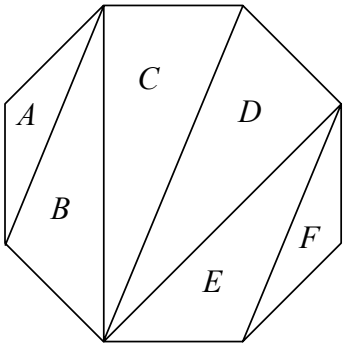


Which of the following triangles also make a trapezium?
Circle your answers.

B and C C and D D and E E and F

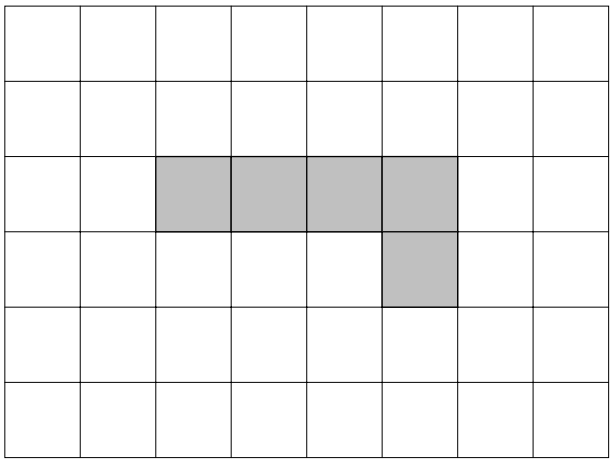
(2 marks)

4 (c) Shade **two** triangles in this diagram to make a kite.



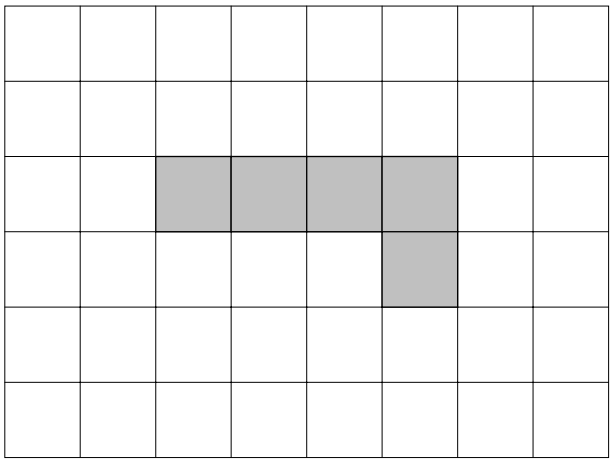
(1 mark)

5 (a) Shade **one** more square to make a shape with one line of symmetry.



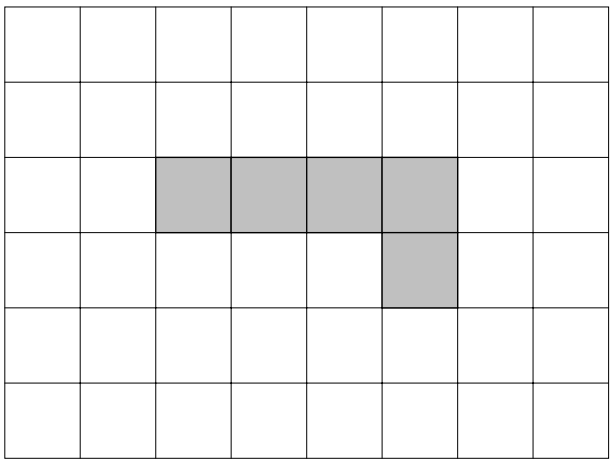
(1 mark)

5 (b) Shade **one** more square to make a different shape with one line of symmetry.



(1 mark)

5 (c) Shade **one** more square to make a shape with rotational symmetry of order 2.

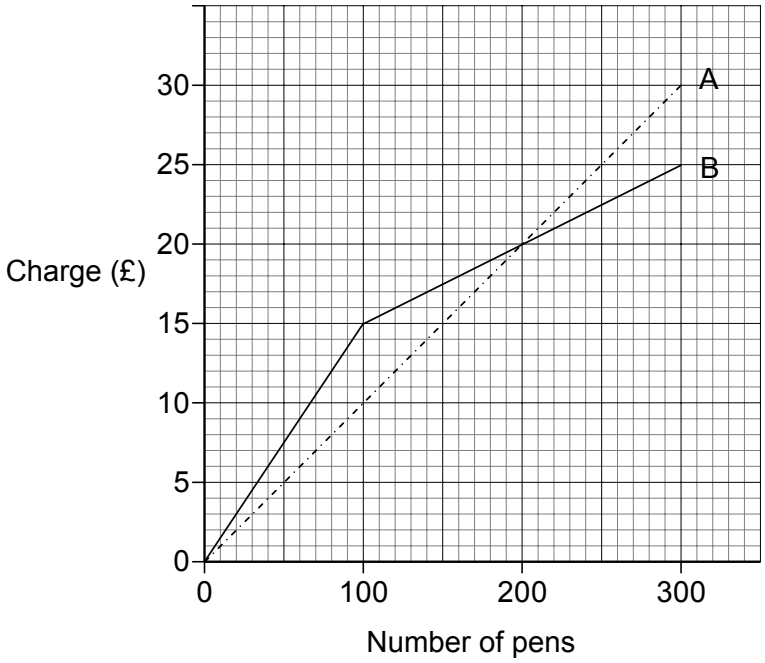


(1 mark)

8

6 Two companies A and B sell pens.

The graph shows how much each company charges.



6 (a) (i) How much does company B charge for 100 pens?

Answer £ ..... *(1 mark)*

6 (a) (ii) Which company would you buy 100 pens from?

Give a reason for your answer.

.....

.....

.....

(2 marks)

6 (b) Two shops, The Pen Shop and News Box, buy some pens.

6 (b) (i) The Pen Shop spends £25 on pens.

How many more pens can they buy from company B than company A?

.....

.....

.....

.....

Answer ..... *(2 marks)*

6 (b) (ii) Buying 200 pens from Company A or Company B costs the same amount.

News Box buys 200 pens.

They sell the pens for 25 pence each.

How many pens do they need to sell to cover the cost of buying the pens?

.....

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Answer ..... *(3 marks)*

8

7 (a) If $x \diamond y$ means $2x + y$ find the value of $2 \diamond 8$

.....

Answer ..... *(1 mark)*

7 (b) If $m \blacktriangledown n$ means $\frac{m+n}{2}$ find the value of $4 \blacktriangledown 10$

.....

Answer ..... *(2 marks)*

7 (c) Simplify $6a + 7b - 2a + b$

.....

.....

Answer ..... *(2 marks)*

7 (d) Solve the equation $5w + 6 = 9 - w$

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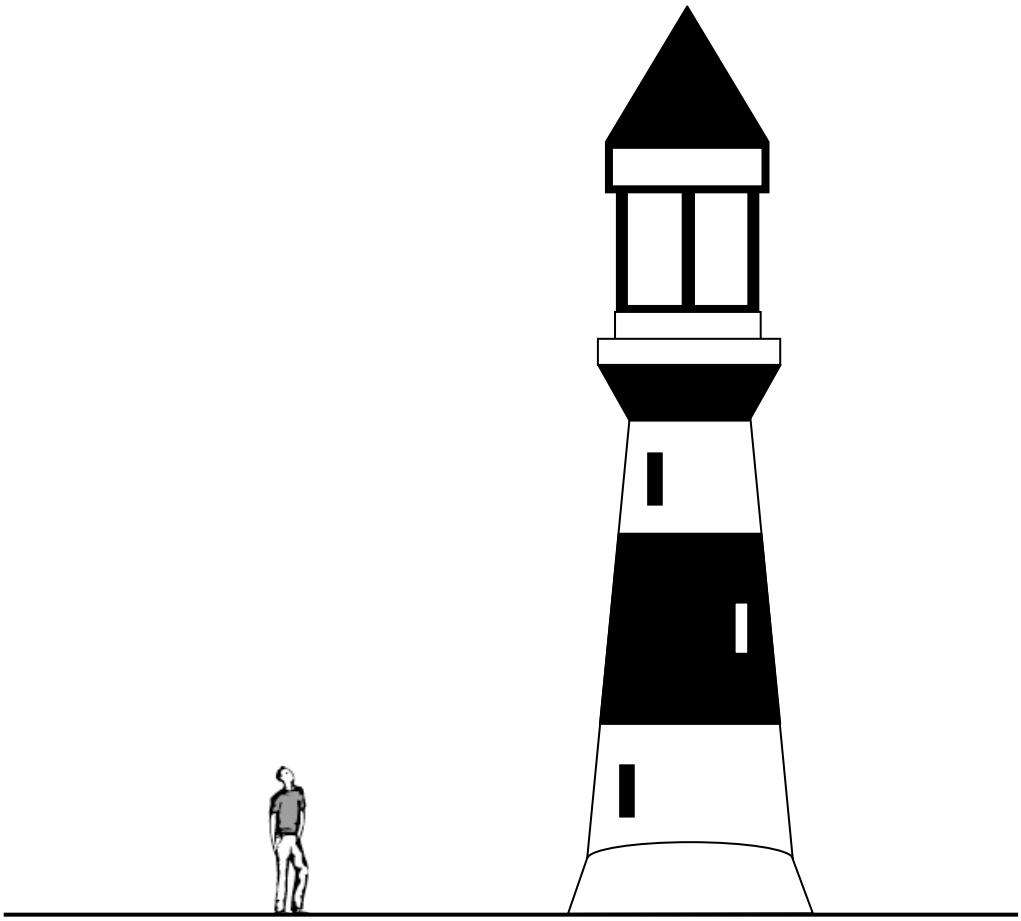
Answer $w =$ ..... *(3 marks)*

8 Use the diagram to estimate the height of the lighthouse.



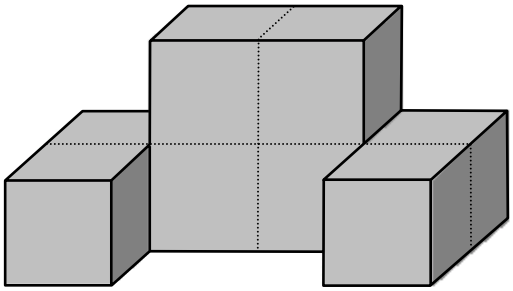
.....

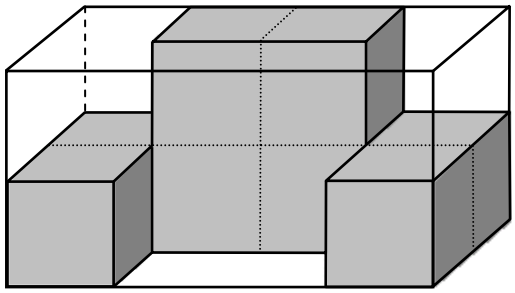
.....

Answer ..... m *(3 marks)*

Turn over for the next question

9 Centimetre cubes are fitted together to make a solid as shown on the left.





The solid is packed into a box as shown on the right.
The box is a cuboid.

Work out the volume of the box.

.....

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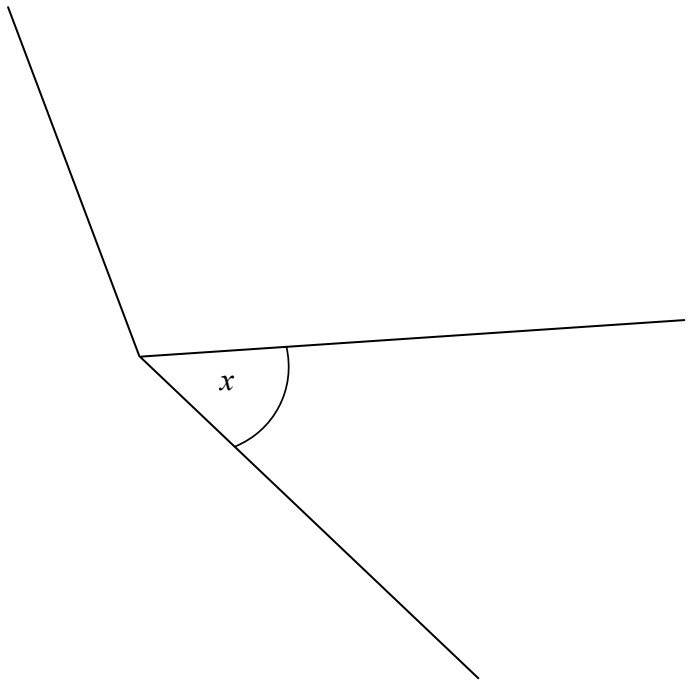
Answer ..... cm^3 *(3 marks)*

10 Viki is cutting angles out of paper to fit together exactly at a point as shown.

She cuts out an acute angle, an obtuse angle and a reflex angle.



10 (a) Measure the size of the acute angle, marked x, on the diagram.

Answer ..... degrees *(1 mark)*

10 (b) Viki starts again using three different angles.

Choose three different angles, one acute, one obtuse and one reflex, which fit together exactly at a point.

.....

.....

.....

Answer Acute = ... degrees

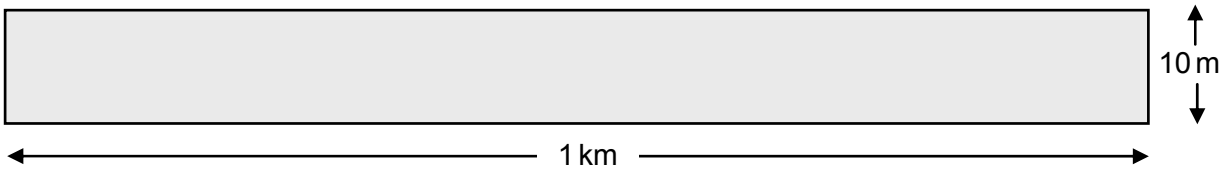
Obtuse = ... degrees

Reflex = ... degrees *(3 marks)*

7

11 Large areas can be measured in hectares.

1 hectare is 10 000 m^2.



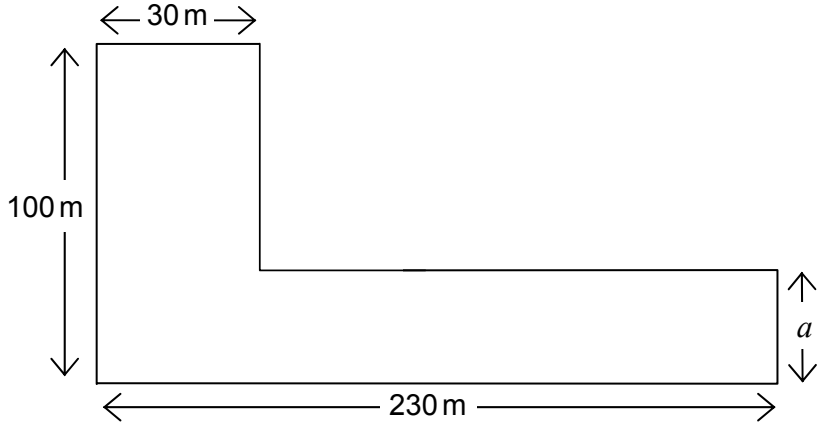
11 (a) Explain why the diagram represents 1 hectare.

.....

.....

(1 mark)

11 (b) This L–shape has an area of one hectare.
All lengths are a whole number of metres.



Not drawn accurately

Work out the value of a.
Give your answer in metres.

.....

.....

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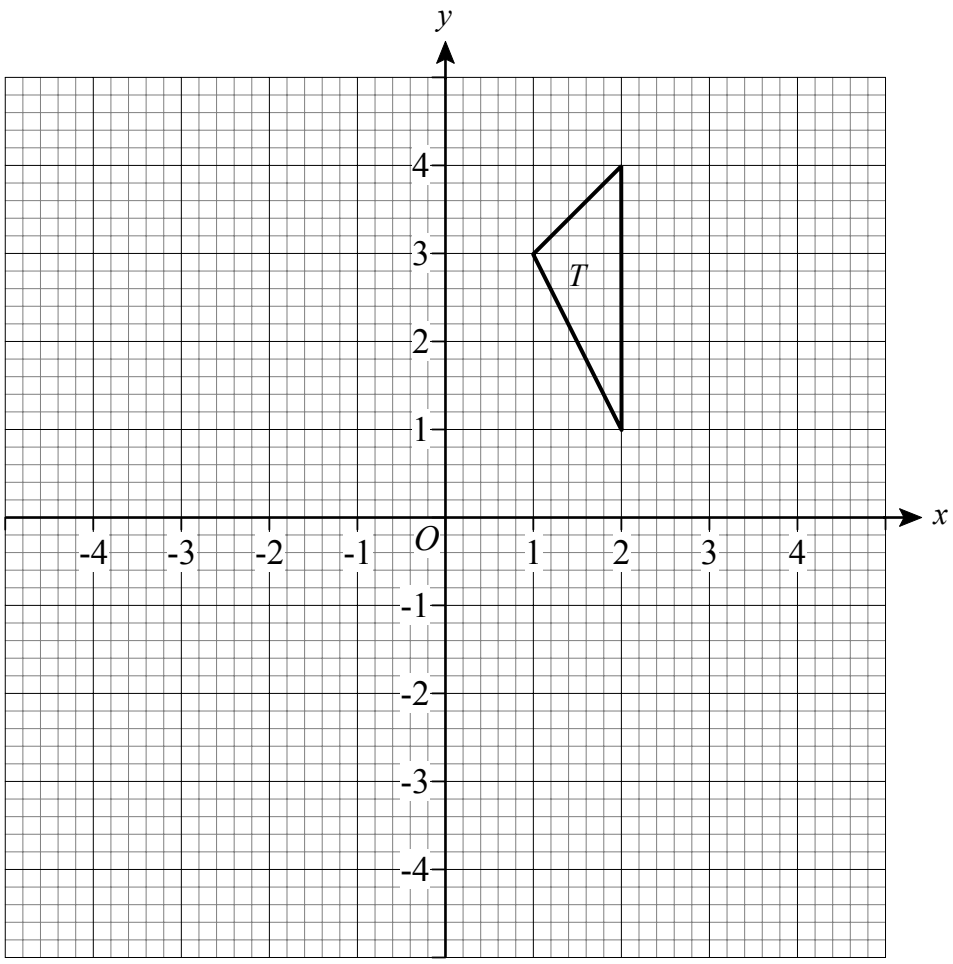
.....

Answer ..... m *(3 marks)*

12 Triangle T is drawn on this grid.

Draw the image of triangle T after a 90° anticlockwise rotation about O.

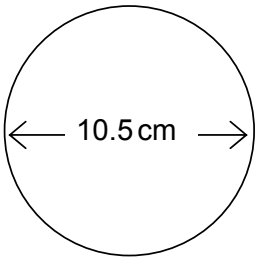


(3 marks)

Turn over for the next question

7

13 Work out the circumference of a circle of diameter 10.5 cm.



Not drawn accurately

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.....

Answer ..... cm *(2 marks)*

14 The speed limit through some roadworks is 50 mph.

Cameras recorded the time taken for a car to travel 600 m through the roadworks as 27 seconds.

10 mph is approximately 4.47 m/s

Was the car speeding through the roadworks?

You **must** show your working.

.....

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(4 marks)

15 (a) An isosceles triangle has one angle of 80°.

Write down the possible sizes of the other two angles.

.....

.....

.....

.....

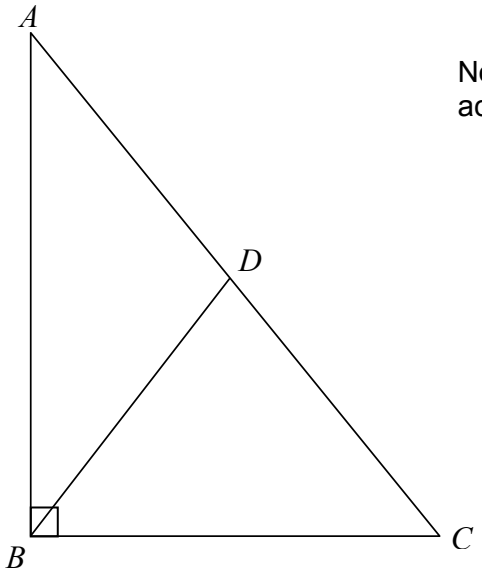
.....

Answer ..... and ..... degrees

or ..... and ..... degrees *(2 marks)*

15 (b) Triangle ABC is a right-angled triangle.

BDC is an equilateral triangle.



Not drawn accurately

Show that triangle ABD is an isosceles triangle.

.....

.....

.....

.....

.....

(3 marks)

11

16 At a wedding reception there are 103 people at 12 tables.
There are eight or nine people at each table

How many tables are there with eight people?

.....

.....

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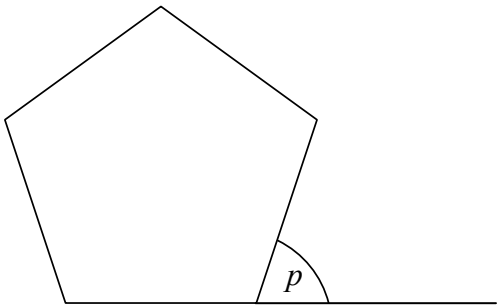
Answer ..... *(4 marks)*

17 (a) Explain why the exterior angle of a regular pentagon, marked p on the diagram, is 72°.

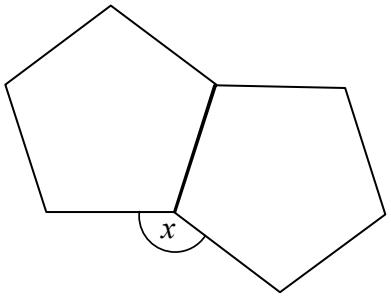


.....

.....

(1 mark)

17 (b) Two identical regular pentagons are joined as shown.



Not drawn accurately

Work out the size of angle x.

.....

.....

.....

.....

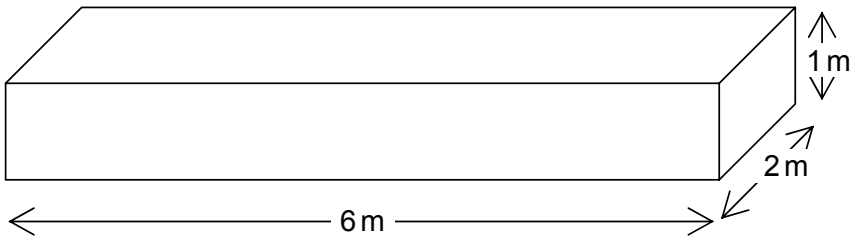
Answer ..... degrees *(2 marks)*

Turn over for the next question

7

✶**18** The shape of a flower bed is a cuboid as shown.

Not drawn accurately



$1\,m^3$ of soil weighs 1.25 tonnes

A gardener wants to fill the flower bed with soil as cheaply as possible.

The table shows the costs for Company A and Company B.

Company A	£49.50 per tonne	Delivery £30
Company B	10 tonnes for £430 then £67.50 per extra tonne	Delivery free

Which company should she use and how much will it cost?

.....

.....

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.....

Answer Company .....

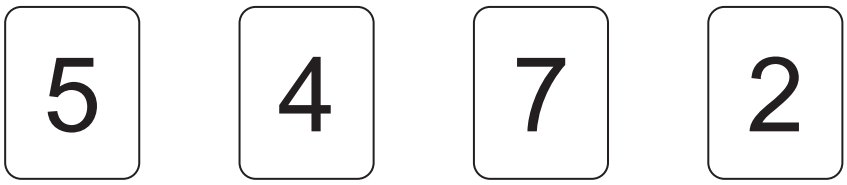
£ ..... *(6 marks)*

END OF QUESTIONS

6

Answer **all** questions in the spaces provided.

1 Here is a set of four number cards.



The cards show the number 5472.

1 (a) Write down the number 5472 in words.

Answer .....

.....

(1 mark)

1 (b) Write down the smallest number you can make using all four cards.

.....

Answer

(1 mark)

1 (c) Write down the largest **odd** number you can make using all four cards.

.....

Answer

(2 marks)

1 (d) Write the number 5472 to the nearest hundred.

Answer ..... *(1 mark)*

2 Ann is paid £200 a week.
Each week she saves one-quarter of her pay.

2 (a) How much does she save each week?

.....

Answer £ ..... *(2 marks)*

2 (b) She is saving for a new carpet that costs £320.

How many weeks does it take to save enough to buy the carpet?

.....

.....

.....

Answer ..... *(2 marks)*

3 Jay has £1.50 in change.
She only has 20 pence coins and 10 pence coins.
She has twice as many 20 pence coins as 10 pence coins.

How many 20 pence coins does she have?

.....

.....

Answer ..... *(2 marks)*

Turn over for the next question

11

4 The table shows what you need to make 4 pancakes.

4 pancakes
120 g of plain flour
1 egg
300 ml of milk

Beth wants to make 12 pancakes.

Complete the table below.

.....

.....

12 pancakes
.....g of plain flour
.....eggs
.....ml of milk

(3 marks)

5 (a) (i) Write down a multiple of 6 that is greater than 20.

Answer ..... *(1 mark)*

5 (a) (ii) Write down a factor of 20 that is less than 6.

Answer ..... *(1 mark)*

5 (b) Use these mathematical terms to complete the statements below.

cube cube root square square root

10 is the ……..... of 100

144 is the ……..... of 12

5 is the ..……..... of 125

(3 marks)

5 (c) This is Ben's working for the calculation $12 + 4 \times 10$

$12 + 4 = 16$

$16 \times 10 = 160$

Answer = 160

Ben is wrong.

Work out the correct answer for the calculation.

.....

.....

Answer ..... *(1 mark)*

9

***6** Here are the monthly charges for Mark's mobile phone.

Monthly charge £15
100 free minutes then 12 p per minute
200 free texts then 10 p per text

During one month, Mark makes 150 minutes of calls and sends 285 texts.

Work out the total charge for the month.

.....

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Answer £ ..... *(5 marks)*

7 Kay has 325 beads.
Sharon has 165 beads.
Kay gives Sharon some beads.
They now have the same number of beads.

How many beads does Kay give Sharon?

.....

.....

.....

.....

.....

.....

Answer ..... *(3 marks)*

8 (a) The numbers in this sequence decrease by the same amount each time.

74 …… 58 50 42 ……

What are the **two** missing numbers?

.....

Answer ..... and ..... *(2 marks)*

8 (b) The numbers in this different sequence decrease by the same amount each time.

26 …… …… …… 6

What are the **three** missing numbers?

.....

.....

.....

.....

Answer ..... , ... , ... *(2 marks)*

9 (a) Solve $3a = 12$

.....

Answer a = ... *(1 mark)*

9 (b) Solve $\frac{x}{5} = -6$

.....

Answer x = ... *(1 mark)*

9 (c) Solve $5c + 4 = 19$

.....

.....

Answer c = ... *(2 marks)*

9 (d) Factorise fully $4t - 20$

.....

Answer ..... *(1 mark)*

17

10 (a) Work out the value of $2a + 3b$ when $a = 5$ and $b = 8$

.....

.....

Answer ..... *(2 marks)*

10 (b) Expand and simplify $3(2m - 4) + 5(m + 2)$

.....

.....

.....

Answer ..... *(2 marks)*

11 I am thinking of a number.
Two-thirds of the number is 60.

What is $1\frac{1}{2}$ times the number?

.....

.....

.....

Answer ..... *(3 marks)*

12 You are given that $P = x^2 - y^2$

12 (a) Show that P is a prime number when $x = 4$ and $y = 3$

.....

.....
(2 marks)

12 (b) Work out **two** other pairs of values for x and y so that P is a prime number.

.....

.....

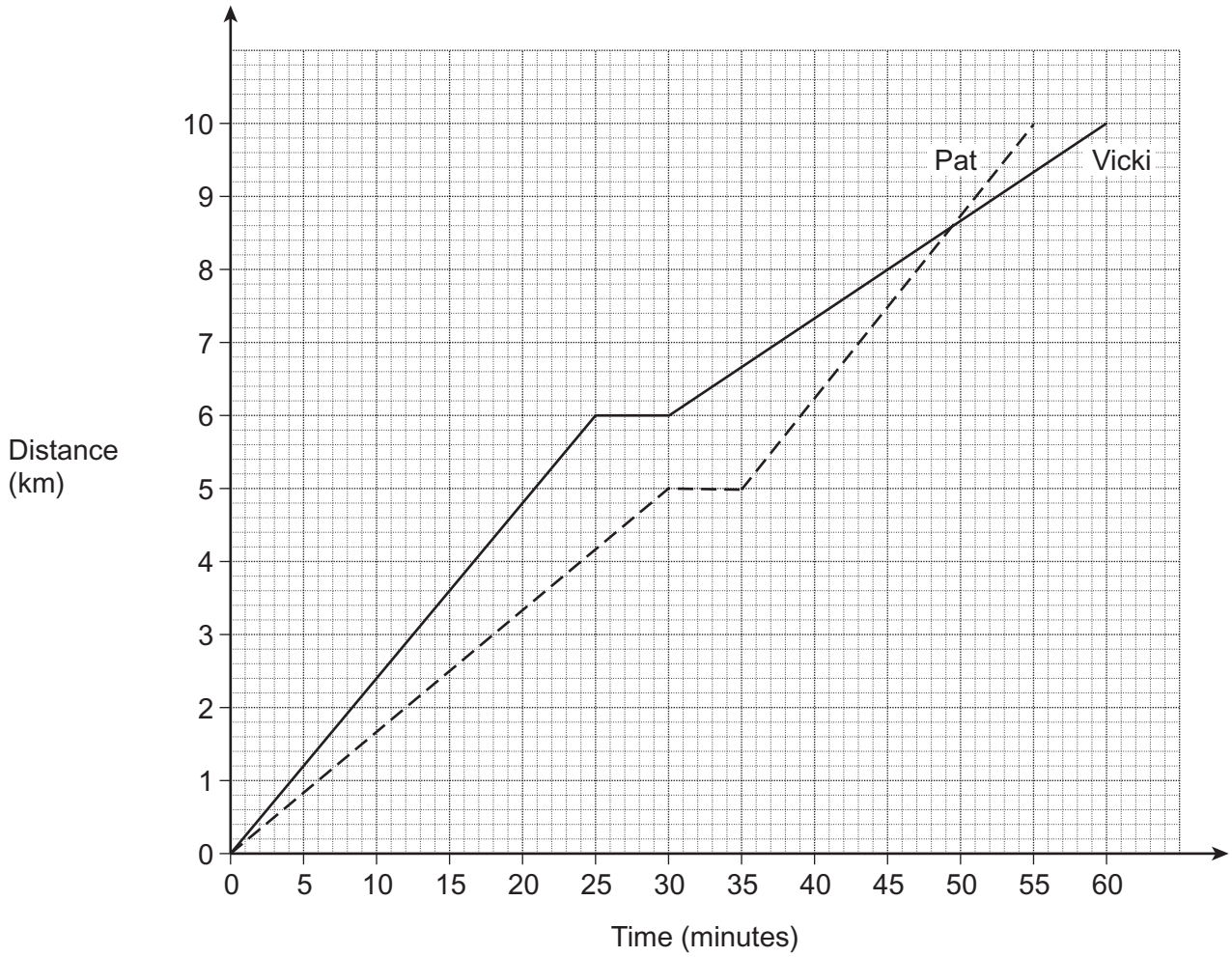
.....

.....

Answer x = ... and y = ...

x = ... and y = ... *(3 marks)*

13 The graph shows two training runs by Pat and Vicki.



13 (a) After how many minutes does Pat overtake Vicki?

Answer ..... minutes *(1 mark)*

13 (b) How far ahead is Vicki when Pat starts again after her rest?

.....

.....

Answer ..... km *(2 marks)*

15

14 Two teachers and 18 students go to the theatre.
The cost of a student's ticket is half of the cost of a teacher's ticket.
The total cost of the tickets is £132.

Work out the cost of one student's ticket.

.....

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Answer £ ..... *(3 marks)*

15 What fraction is half way between $\frac{1}{4}$ and $\frac{1}{8}$?

Give your answer as a fraction in its simplest form.

.....

.....

.....

.....

Answer ..... *(3 marks)*

16 Divide £600 in the ratio 9 : 6 : 5

.....

.....

.....

.....

Answer £ ..... : £ ..... : £ ..... *(3 marks)*

***17** Martha sells jars of jam at a farmers' market.
She has 80 jars to sell at £3 each.
She sells 50 jars and then reduces the price by 40%.
Martha then sells the remaining jars at the reduced price.

It costs her £95 to make the jars of jam.
Her target is to make a profit of at least £100.

Does she meet her target?
You **must** show your working.

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(5 marks)

END OF QUESTIONS

14

1 **(a)** Write 4028 in words.

_____ **[1]**

(b) Write thirty five thousand and four in figures.

(b) _____ **[1]**

(c) Write 6814 correct to

(i) the nearest ten,

(c)(i) _____ **[1]**

(ii) the nearest thousand.

(ii) _____ **[1]**

(d) In the number 32 745, the 3 has a value of 30 000.

What is the value of

(i) the 4 in the number 32 745,

(d)(i) _____ **[1]**

(ii) the 7 in the number 32 745?

(ii) _____ **[1]**

2 **(a)** What percentage of the diagram has been shaded?

(a) _____ % **[1]**

(b) Shade in one more of the small rectangles.

What **fraction** of the diagram has now been shaded altogether?
Give your answer in its lowest terms.

(b) _____ **[2]**

(c) Write $\frac{3}{4}$ as a decimal.

(c) _____ **[1]**

3

Millimetres	**Grams**	**Kilometres**	**Centimetres**
Kilograms	**Metres**	**Litres**	**Millilitres**

Which of these metric units is best to use for measuring

(a) the length of a pen,

(a) _____ **[1]**

(b) the weight of an egg,

(b) _____ **[1]**

(c) the capacity of a small drinking glass,

(c) _____ **[1]**

(d) the distance from Chesterfield to Dover,

(d) _____ **[1]**

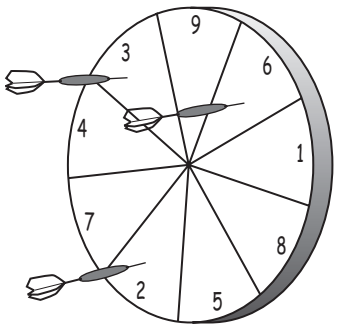
(e) the weight of a large bag of potatoes?

(e) _____ **[1]**

4 Anya is throwing darts at this target.

Here are her scores.

9 3 2 3 6 8 7 2 3 4 9 4 5



(a) Find the mode.

(a) _____ **[1]**

(b) **Describe** how you would find the median. (You do not need to work it out.)

_____

_____

_____ **[2]**

5 (a) (i)

Sally buys two magazines, one costing £1.25 and the other costing £1.99.
She pays with a £5 note.

Work out how much change she should get.

.....

.....

(a)(i) £ _____ **[2]**

(ii) Sally likes reading Romance books.
They cost £1.45 each.

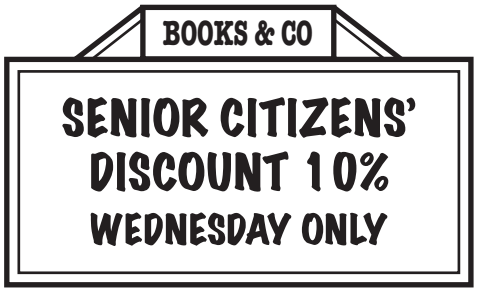
Work out the largest number of Romance books that she could buy for £10.

.....

.....

(ii) _____ **[2]**

(b)



On Wednesdays, Mr Green can get 10% discount at the bookshop.

Work out how much discount he should get if he bought a book priced at £12.00.

.....

.....

(b) £ _____ **[2]**

6 **(a)** Measure the line GH.

G ——————————————————— H

(a) _____ cm **[1]**

(b) Draw a circle, radius 3 cm.
Mark, with a cross, a point on the circumference of the circle. **[2]**

(c) Draw and label an angle of 37°. **[2]**

(d) Draw in all the lines of symmetry of this shape.

[2]

7 Here is a number machine.

(a) (i) Work out the output when the input is 2.

.....

(a)(i) _____ **[1]**

(ii) Work out the output when the input is –4.

.....

(ii) _____ **[1]**

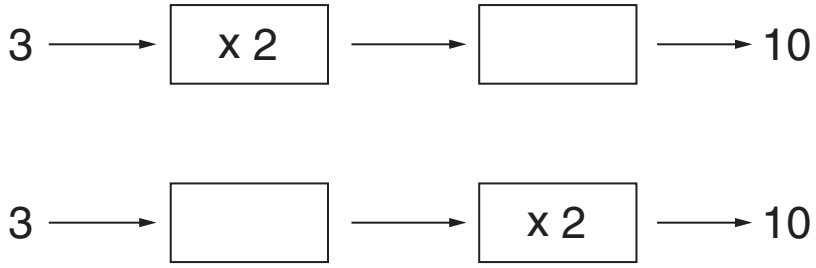
(iii) Work out the **input** when the output is 5.

.....

.....

(iii) _____ **[2]**

(b) Complete these number machines.



[2]

8 **(a)** Simplify.

(i) $y + 6y + 2y$

.....

(a)(i) _____ **[1]**

(ii) $5x - 2x + 4x$

.....

(ii) _____ **[1]**

(b) When $f = 2$ and $g = 5$, work out the value of

$3f + 2g$.

.....

(b) _____ **[2]**

(c) **(i)** Write an expression for the total cost, in pence, of x pencils costing 40p each.

(c)(i) _____ **[1]**

(ii) Jayne has y pens. She buys 12 more.

Write an expression for the total number of pens she has now.

(ii) _____ **[1]**

9 **(a)** Find the value of $\sqrt{2.25}$.

(a) _____ **[1]**

(b) Change $\frac{17}{100}$ into a decimal.

(b) _____ **[1]**

(c) Work out $\frac{3}{5}$ of 145.

.....

.....

(c) _____ **[2]**

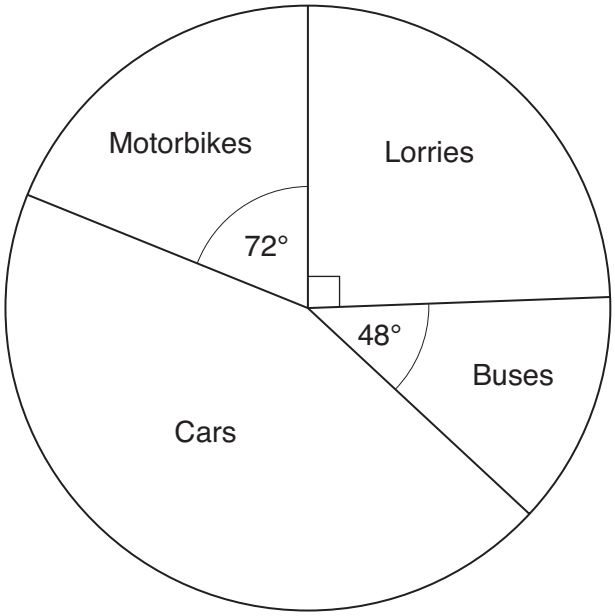
(d) Work out 29% of £4.35.

.....

.....

(d) £ _____ **[3]**

10 Ravi did a survey of the types of vehicles that travel on the road outside his house.
Altogether, 180 vehicles passed in the time that he was watching.
The pie chart represents the results.



NOT TO SCALE

(a) What fraction of the vehicles were Lorries?

(a) _____ **[1]**

(b) Work out the size of the angle for Cars.

.....

.....

(b) _____ ° **[2]**

(c) **(i)** How many of the 180 vehicles were Buses?

.....

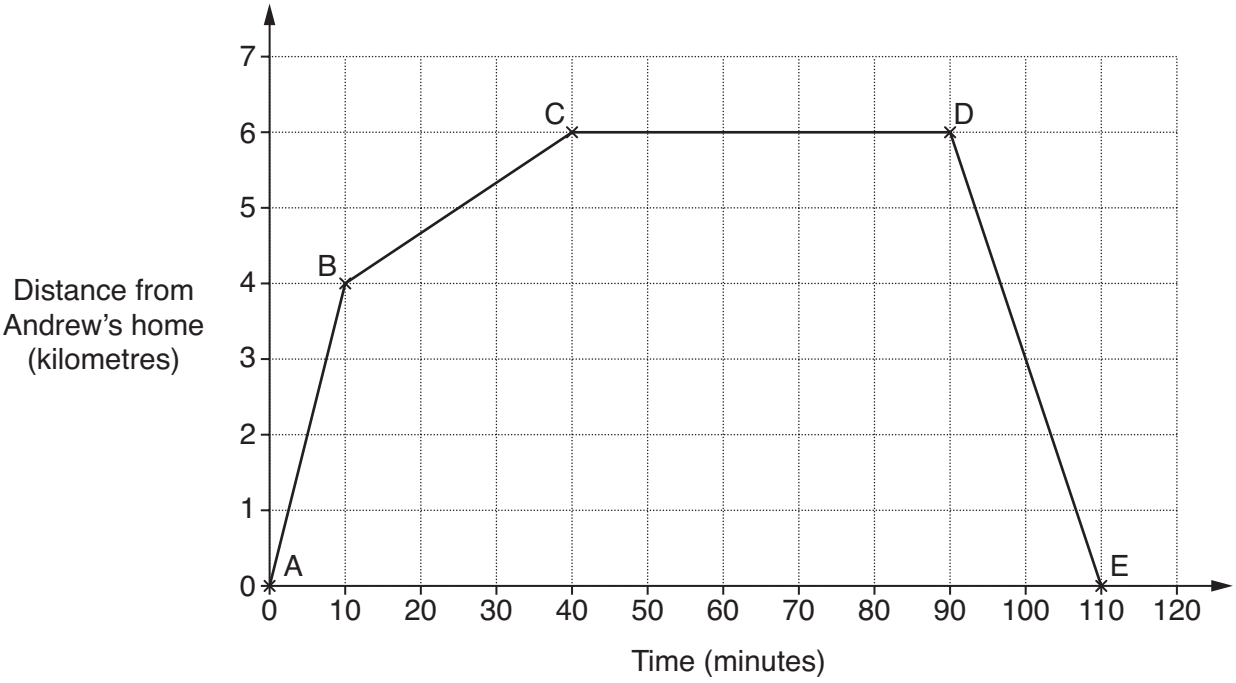
(c)(i) _____ **[1]**

(ii) Work out the probability that one of these vehicles, chosen at random, is a Bus.

.....

(ii) _____ **[1]**

11 The distance / time graph represents Andrew's bike journey when he visited his Aunt.



(a) How long did Andrew stay at his Aunt's house?

(a) _____ mins **[1]**

(b) Andrew was travelling fastest between points A and B.

Explain how you can tell this from your graph.

_____

_____ **[1]**

(c) Explain what happened at B.

_____

_____ **[1]**

(d) Explain what happened at E.

_____

_____ **[1]**

(e) Work out the total distance that Andrew travelled.

.....

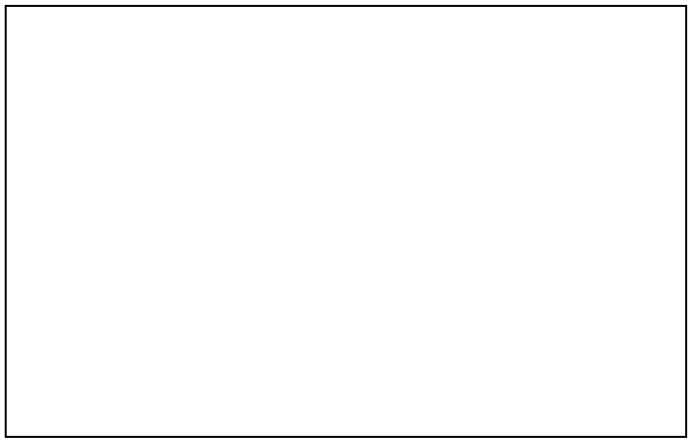
.....

(e) _____ km **[1]**

12 **(a)** The smaller rectangle is 7cm long and 3 cm wide.
The larger rectangle is an enlargement of the smaller one using scale factor 3.

Write down the length and width of the larger rectangle.

NOT TO SCALE

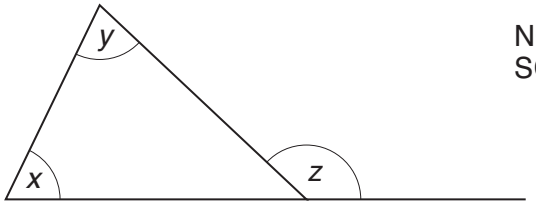


_____ cm

_____ cm

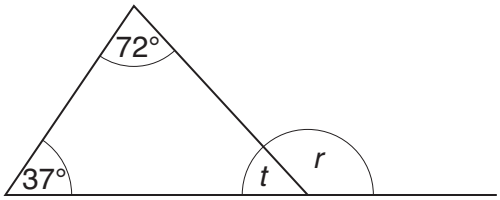
[2]

(b) Winston thinks: "In this diagram, $x + y = z$."



NOT TO SCALE

Here is another diagram.



NOT TO SCALE

(i) Work out the size of angle *t*.

.....

(b)(i) _____ ° **[1]**

(ii) Work out the size of angle *r*.

.....

(ii) _____ ° **[1]**

(iii) Use your answer to part **(ii)** to see if Winston is right or wrong.

_____

_____ **[2]**

13 **(a)** Sophie hires a mini digger to landscape her garden.
It costs £75.50 for the first day and £52.50 for each day after that.
Sophie pays £285.50 altogether.

For how many days does she hire the mini digger?

.....

.....

(a) _____ days **[3]**

(b) Tony won £800 in a competition.

He gave $\frac{1}{4}$ of it to his wife, $\frac{1}{5}$ of it to his daughter and kept the rest.
What **fraction** of the £800 did he keep for himself?

.....

.....

.....

(b) _____ **[4]**

14 Josh painted his bedroom.

Complete his paint bill by working out the three missing values.

.....

.....

.....

.....

Paint Bill		
3 tins silk emulsion	@ £17.99 per tin	£_____
_____ tins gloss	@ £11.99 per tin	£_____
	Total cost	**£ 77.95**

[4]

15 15 women each changed a car wheel.
These are the times taken, in minutes.

22	15	13	17	22
8	16	21	7	10
12	33	9	18	22

(a) Draw an ordered stem and leaf diagram to show these times.

.....

.....

.....

.....

.....

.....

Key:

[3]

(b) Work out the median and range of these times.

.....

.....

(b) Median = _____ minutes

Range = _____minutes **[2]**

15 men each changed a car wheel.
The median time taken by these men was 16 minutes.
The range of their times was 33 minutes.

(c) Write down one comparison between the times taken by these men and women.

_____

_____ **[1]**

16 **(a)** The nth term of a sequence is $n^2 + 2$.

Write down the first three terms of this sequence.

.....

.....

(a) _____ , _____ , _____ **[2]**

(b) Another sequence begins

7, 11, 15, 19, ……

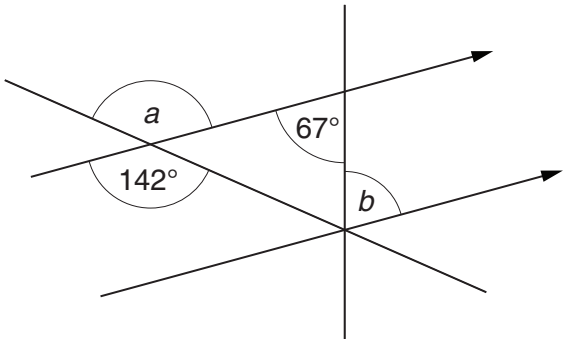
Write down the nth term of this sequence.

.....

.....

(b) _____ **[2]**

17 **(a)** Find the sizes of angle a and angle b.
Write down a reason for each answer.



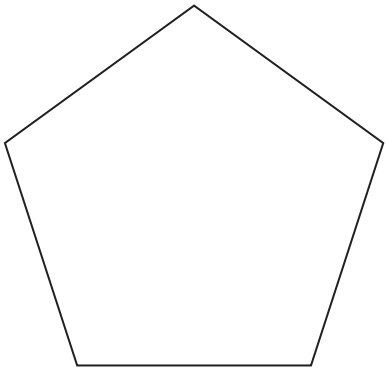
NOT TO SCALE

a = _____ ° Reason _____

b = _____ ° Reason _____ **[4]**

(b) **(i)** The sum of the interior angles of a regular pentagon is 540°.

Without measuring any angles, explain why this is true.



_____

_____

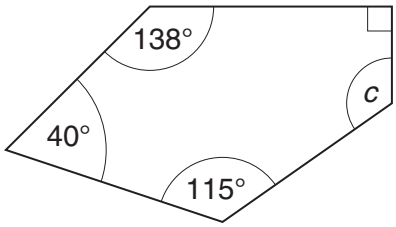
_____

_____

_____

[3]

(ii) This is an irregular pentagon.



NOT TO SCALE

Work out angle *c*.

.....

.....

(b)(ii) _____ ° **[2]**

(iii) The area of another pentagon is 4.5 cm^2.

Change 4.5 cm^2 into mm^2.

.....

.....

(iii) _____ mm^2 **[2]**

TURN OVER FOR QUESTION 18

18 Simplify.

(a) $t^2 \times t^7$

.....

(a) _____ **[1]**

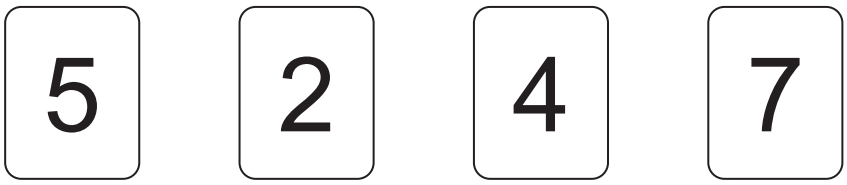
(b) $\dfrac{p^6}{p^2}$

.....

(b) _____ **[1]**

Answer **all** questions in the spaces provided.

1 Here are four number cards.



1 (a) Write the number 5247 in words.

Answer .....

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(1 mark)

1 (b) Write the number 5247 to the nearest hundred.

Answer ..... *(1 mark)*

1 (c) What is the largest number you can make using all four cards?

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(1 mark)

1 (d) What is the smallest **even** number you can make using all four cards?

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(2 marks)

2 (a) Complete the table.

Fraction	Decimal	Percentage
$\frac{3}{4}$		75%
$\frac{9}{10}$	0.9	
	0.3	30%

(3 marks)

2 (b) Write $\frac{3}{4}$, 0.9 and 30% in order with the smallest first.

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Answer ....., ..., ... *(1 mark)*

***3** Emma wants to buy

2 magazines at £1.70 each
3 birthday cards at £2.25 each.

She only has a £10 note.

Is this enough?
You **must** show your working.

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(4 marks)

13

4 Jack shares these coins with Lucy.

50p

20p

20p

20p

10p

10p

10p

5p

5p

They both receive the same amount.

Write down the coins they could receive.

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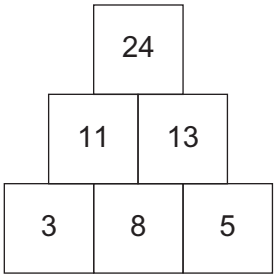
Answer Jack .....

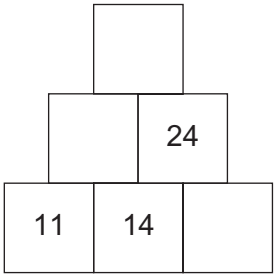
Lucy ..... *(4 marks)*

5 Here is a number pyramid.



Each number is found by adding the two numbers directly below.
For example 8 + 5 = 13

5 (a) Complete this number pyramid.



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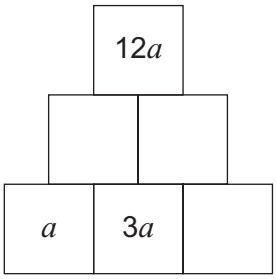
(2 marks)

5 (b) Complete this algebra pyramid.



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(3 marks)

9

6 This table shows the ingredients needed to make six flapjacks.

Butter	75 grams
Sugar	60 grams
Oats	175 grams
Syrup	1 tablespoon

Complete the table to show the ingredients needed to make 24 flapjacks.

Butter	..... grams
Sugar	..... grams
Oats	..... grams
Syrup	..... tablespoons

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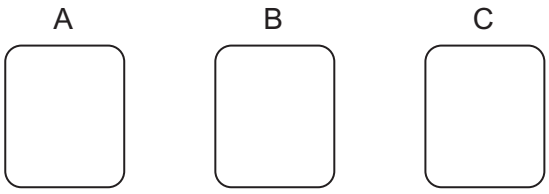
(4 marks)

7 Here are three cards.



Write a different whole number on each card so that

the numbers add up to 60
the number on card A is a multiple of 10
the number on card B is three times the number on card C.

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(3 marks)

8 There are six cakes in a box.
The box and the cakes weigh 200 grams altogether.
The box weighs 20 grams.
Each cake weighs the same.

What does one cake weigh?

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Answer ..... grams *(3 marks)*

10

9 (a) Complete the table of values for $2x + y = 10$

x	0	1	2	3	4	5
y	10		6		2	

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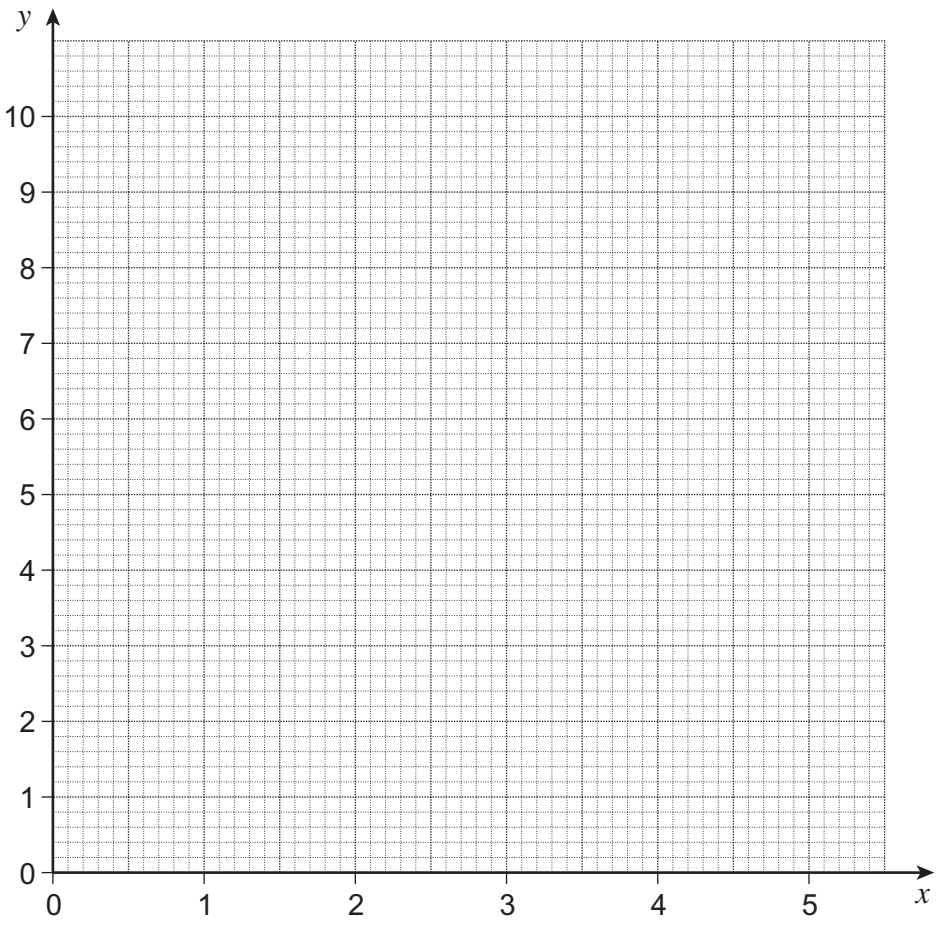
(2 marks)

9 (b) On the grid draw the graph of $2x + y = 10$ for values of x from 0 to 5.



(2 marks)

10 Two-thirds of a number is 8.

Work out four times the number.

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Answer ..... *(3 marks)*

11 w is an even number.

For each statement, tick the correct box.

		Always true	Sometimes true	Never true
$4w - 3$	is even.	☐	☐	☐
$4w - 3$	is prime.	☐	☐	☐
$4w - 3$	is a multiple of 9.	☐	☐	☐

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(3 marks)

10

12 Given that $25.6 \times 32 = 819.2$

12 (a) work out $\frac{81.92}{32}$

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Answer ..... *(1 mark)*

12 (b) work out 0.256×320

.....

Answer ..... *(1 mark)*

13 In May, a coat costs £64.
In June, the May price is rounded to the nearest £10.
In July, the June price is reduced by 20%.

Ian has £50.

Does he have enough money to buy the coat in July?

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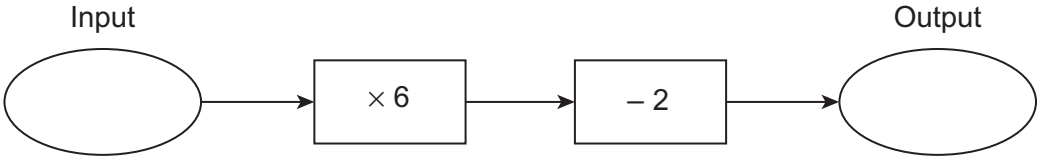
(3 marks)

14 Here is a number machine.



The output is twice the input.

Work out the input.

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Answer ..... *(3 marks)*

15 (a) Find the value of $3x + 2y$ when $x = 4$ and $y = -5$

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Answer ..... *(2 marks)*

15 (b) Solve $\frac{c}{4} = 3$

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Answer c = ... *(1 mark)*

15 (c) Solve $2(3w - 4) = 7$

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Answer w = ... *(3 marks)*

15 (d) Expand $a(a^2 + 4)$

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Answer ..... *(2 marks)*

16

***16** Last year, 12 students went to the theatre.
The total cost of the tickets was £240.

This year, 8 students are going.
The cost of each ticket has increased by 15%.
They have a total of £200.

Is this enough to buy 8 tickets?
You **must** show your working.

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(5 marks)

17 Ali, Beth and Clare take a test.

The ratio of Ali's score to Beth's score is 5 : 3
Ali scored 10 more marks than Beth.

Clare scored 7 more marks than Ali.

Work out each of their scores.

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Answer Ali ..... marks

Beth ..... marks

Clare ..... marks

(3 marks)

END OF QUESTIONS

8