Centre No.						Paper Reference								Surname	Initial(s)
Candidate No.						5	5	0	2	/	0	2		Signature	

Paper Reference(s)

5502/02

Examiner's use only

Team Leader's use only

Edexcel GCSE

Mathematics A – 1387

Paper 2 (Calculator)

Foundation Tier

Tuesday 15 June 2004 – Morning

Time: 1 hour 30 minutes

Materials required for examination
Ruler graduated in centimetres and millimetres, protractor, compasses, pen, HB pencil, eraser, calculator. Tracing paper may be used.

Items included with question papers
Nil

Instructions to Candidates

In the boxes above, write your centre number, candidate number, your surname, initials and signature.
You must NOT write on the formulae page or any blank pages. Anything you write on these pages will gain NO credit.
If you need more space to complete your answer to any question, use additional answer sheets.

Information for Candidates

The total mark for this paper is 100. This paper has 23 questions.
The marks for individual questions and parts of questions are shown in round brackets: e.g. (**2**).
Calculators may be used.
If your calculator does not have a π button, take the value of π to be 3.142 unless the question instructs otherwise.

Advice to Candidates

Show all stages in any calculations.
Work steadily through the paper. Do not spend too long on one question.
If you cannot answer a question, leave it and attempt the next one.
Return at the end to those you have left out.

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Turn over

Edexcel
Success through qualifications

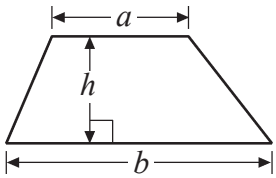
Leave blank

GCSE Mathematics 1387/8

Foundation Tier Formulae

You must not write on this page.
Anything you write on this page will gain NO credit

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



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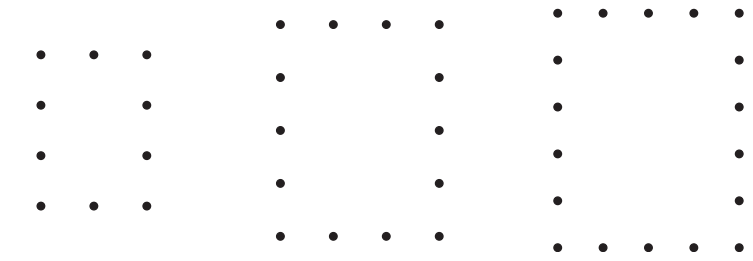
Answer ALL TWENTY THREE questions.

Write your answers in the spaces provided.

You must write down all stages in your working.

1. Here are some patterns made up of dots.



Pattern number 1 Pattern number 2 Pattern number 3

(a) In the space below, draw Pattern number 4.

(1)

(b) Complete the table.

Pattern number	1	2	3	4	5
Number of dots	10	14	18		

(1)

(c) How many dots are used in Pattern number 10?

.....

(1)

Page Total

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2. Christine buys

a calculator costing £5.95
a pencil case costing £1.62
a ruler costing 25p
two pens costing 48p each

She pays with a £10 note.

(a) How much change should she get from her £10 note?

£.....

(3)

Christine needs 160 tiles for a room.
Tiles are sold in boxes.
There are 12 tiles in each box.

(b) Work out the least number of boxes of tiles that Christine needs.

..... boxes

(2)

Each box of tiles costs £12.20

(c) Work out the **total** cost of the boxes of tiles that Christine needs.

£.....

(2)

Leave blank

3. Fiona has four cards.
Each card has a number written on it.

4	9	1	5

Fiona puts all four cards on the table to make a number.

(a) (i) Write the numbers on the cards to show the smallest number Fiona can make with the four cards.

(ii) Write the numbers on the cards to show the largest number Fiona can make with the four cards.

(2)

Fiona uses the cards to make a true statement.

(b) Write the number on the cards to make this true.
Use each of Fiona's cards **once**.

	+		=		

(1)

A fifth card is needed to show the result of the multiplication 4915×10
She needs a fifth card.

(c) Write the number that should be on the fifth card.

(1)

Page Total

Leave blank

4. Here is part of a railway timetable.

Manchester	07 53	09 17	10 35	11 17	13 30	14 36	16 26
Stockport	08 01	09 26	10 43	11 25	13 38	14 46	16 39
Macclesfield	08 23	09 38	10 58	11 38	13 52	14 58	17 03
Congleton	08 31	–	–	11 49	–	15 07	17 10
Kidsgrove	08 37	–	–	–	–	–	17 16
Stoke-on-Trent	08 49	10 00	11 23	12 03	14 12	15 19	17 33

A train leaves Manchester at 10 35.

(a) At what time should this train arrive in Stoke-on-Trent?

.....

(1)

Doris has to go to a meeting in Stoke-on-Trent.
She will catch the train in Stockport.
She needs to arrive in Stoke-on-Trent before 2 pm for her meeting.

(b) Write down the time of the latest train she can catch in Stockport.

.....

(1)

(c) Work out how many minutes it should take the 14 36 train from Manchester to get to Stoke-on-Trent.

..... minutes

(1)

The 14 36 train from Manchester to Stoke-on-Trent takes less time than the 16 26 train from Manchester to Stoke-on-Trent.

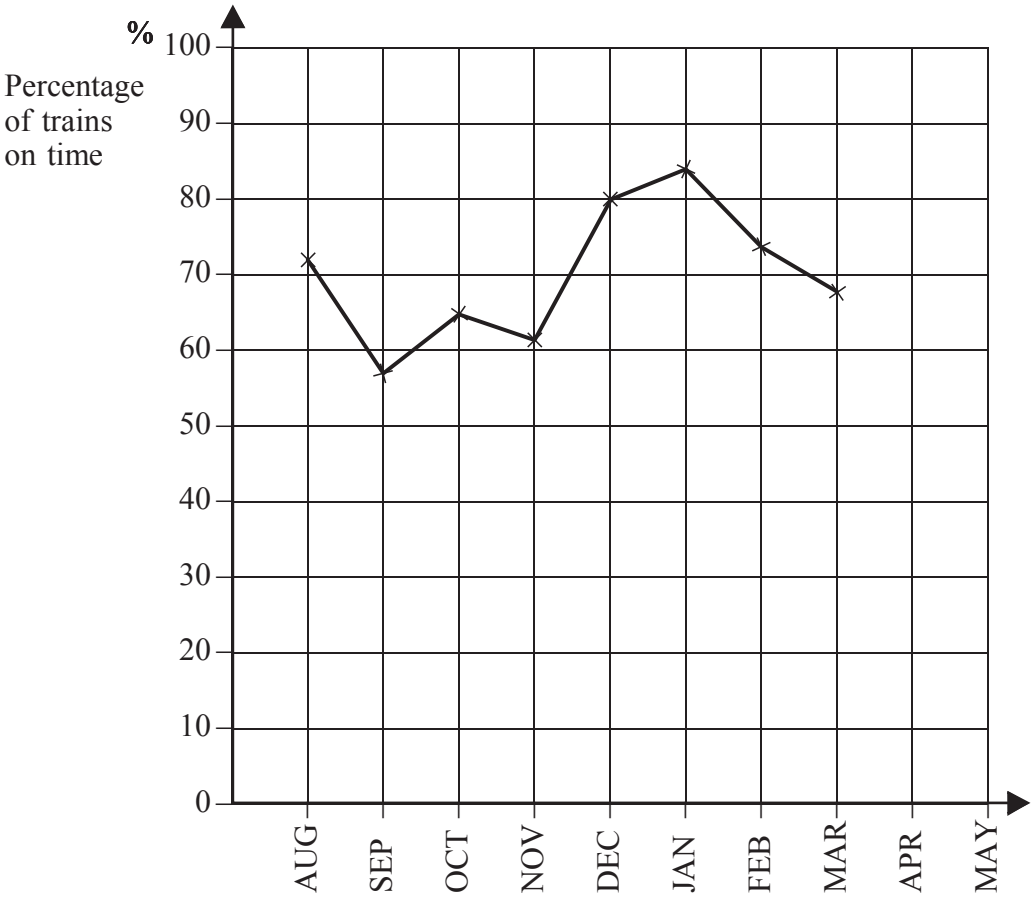
(d) How many minutes less?

..... minutes

(2)

Leave blank

The graph shows the percentage of trains each month that arrived on time from August to March.



(e) Use the graph to write down the

(i) percentage of trains which arrived on time in December,

..... %

(ii) lowest percentage of trains which arrived on time.

..... %

(2)

The percentage for April was 70% and for May was 62%.

(f) Complete the graph for April and for May.

(2)

Page Total

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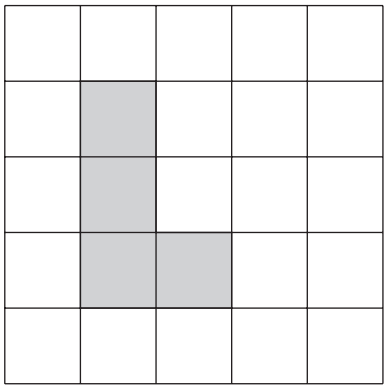
5.



(a) (i) Find the area of the shaded shape.

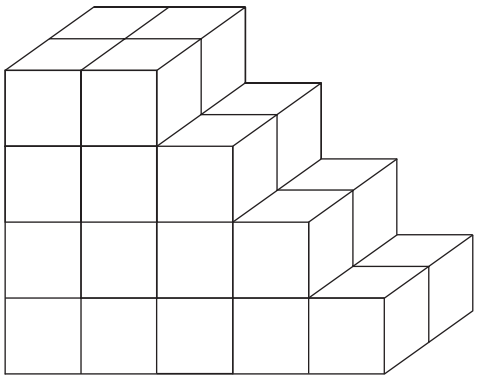
..... cm^2

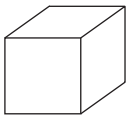
(ii) Find the perimeter of the shaded shape.

..... cm

(2)

Here is a solid prism made from centimetre cubes.





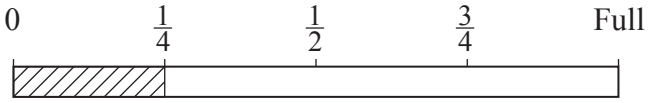
(b) Find the volume of the solid prism.

..... cm^3

(2)

Leave blank

6.



The diagram shows the measuring scale on a petrol tank.

(a) What fraction of the petrol tank is empty?

.....

(1)

The petrol tank holds 28 litres when full.
A litre of petrol costs 74p.

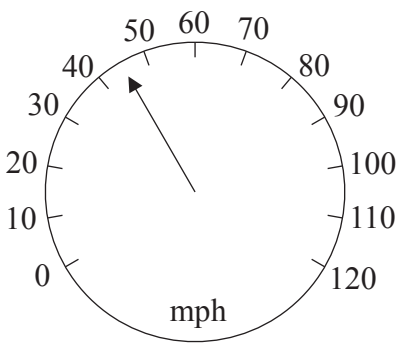
(b) Work out the cost of the petrol which has to be added to the tank so that it is full.

£.....

(3)

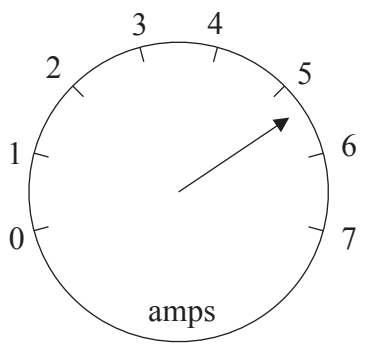
(c) What is the reading on each of these scales?

(i)



..... mph

(ii)



..... amps

(2)

Page Total

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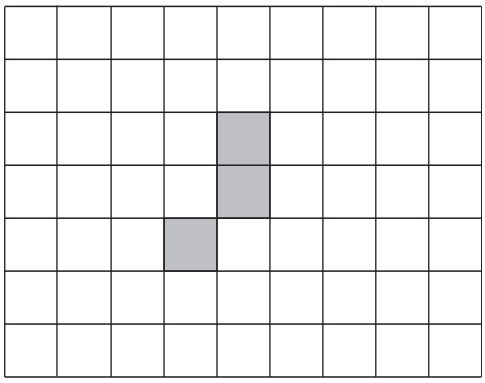
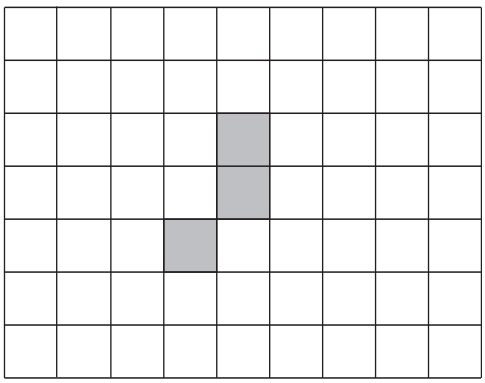
7. (a) On the diagram below, shade **one** square so that the shape has exactly **one** line of symmetry.



(1)

(b) On the diagram below, shade **one** square so that the shape has rotational symmetry of order **2**.



(1)

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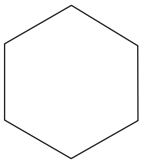
8.



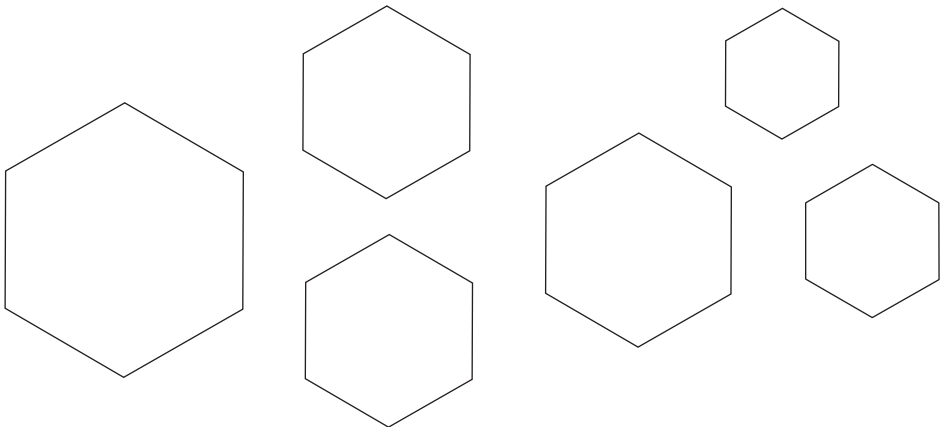
(a) What special name is given to this polygon?

.....

(1)

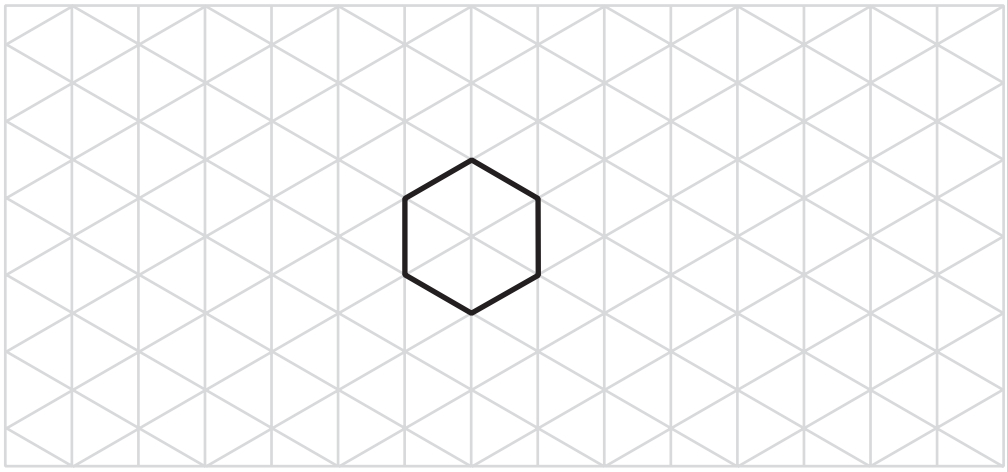
One of the polygons below is congruent to the polygon shown in part (a).

(b) Draw a circle around this polygon.



(1)

(c) On the grid, show how this shape will tessellate.
You should draw at least 8 shapes.



(2)

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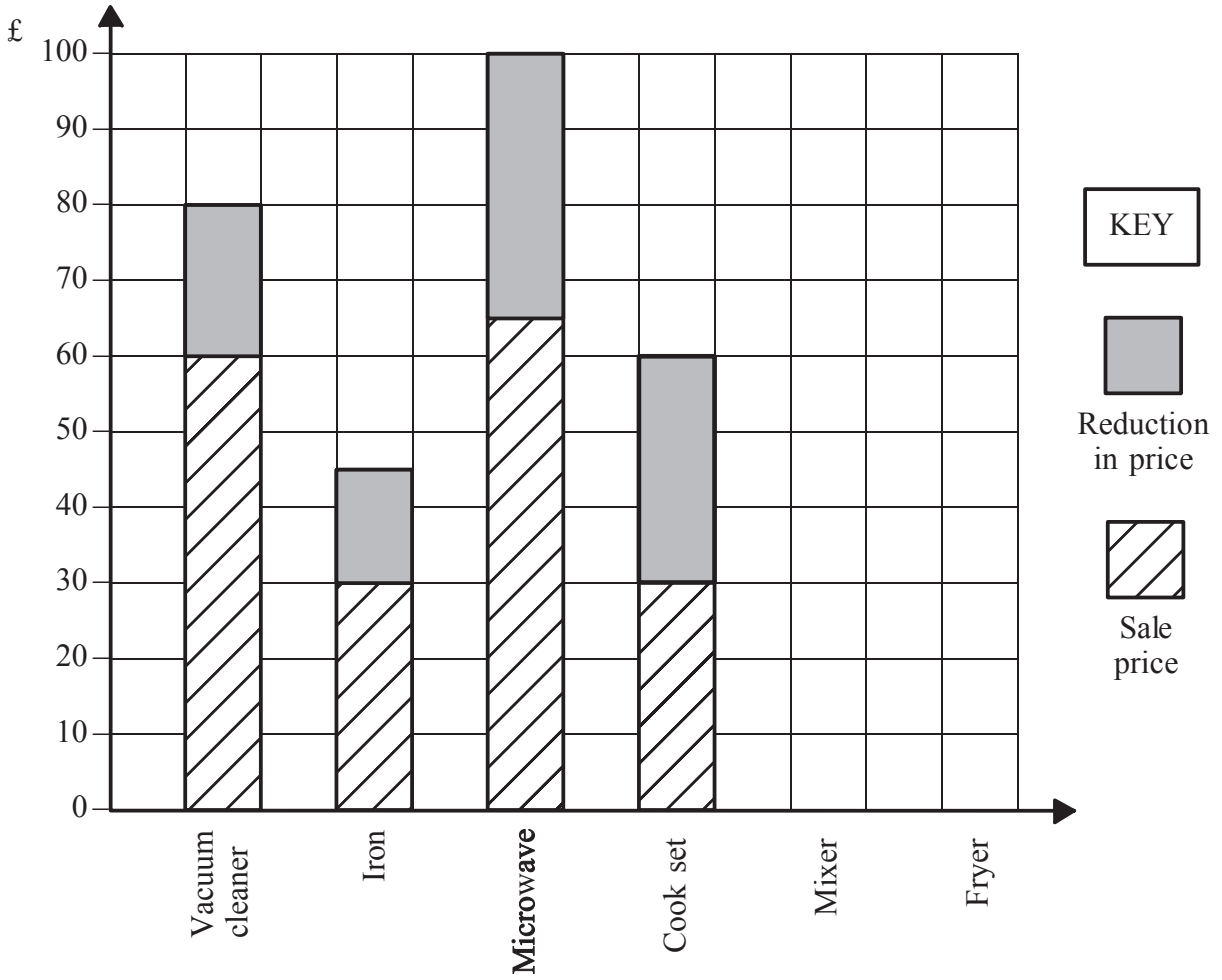
9. A shop has a sale.
The bar chart shows some information about the sale.



The normal price of a vacuum cleaner is £80
The sale price of a vacuum cleaner is £60
The price of a vacuum cleaner is reduced from £80 to £60

(a) Write the sale price of a vacuum cleaner as a fraction of its normal price.
Give your answer in its simplest form.

.....
(2)

(b) Find the reduction in the price of the iron.

£ .....
(1)

(c) Which **two** items have the same sale price?

..... and .....
(1)

Leave blank

(d) Which item has the greatest reduction in price?

.....

(1)

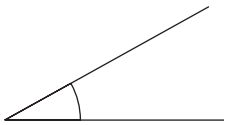
Mixer	
Normal price	£90
Sale price	£70

Fryer	
Normal price	£85
Sale price	£70

(e) Complete the bar chart for the mixer and the fryer.

(2)

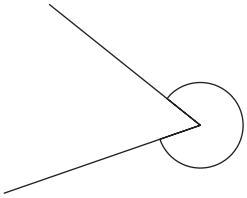
10. (a) Write down the special name for this type of angle.



.....

(1)

(b) Write down the special name for this type of angle.



.....

(1)

(c)

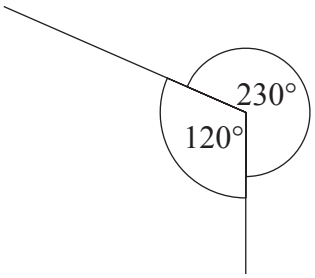


Diagram **NOT** accurately drawn

This diagram is wrong.
Explain why.

.....

.....

(1)

Page Total

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11. Mark throws a fair coin.
He gets a Head.

Mark's sister then throws the same coin.

(a) What is the probability that she will get a Head?

.....
(1)

Mark throws the coin 30 times.

(b) Explain why he may not get exactly 15 Heads and 15 Tails.

.....

.....
(1)

12. Joe can do, on average, 4 calculations on his calculator every minute.

(a) How many calculations, on average, can he do in $7\frac{1}{2}$ minutes?

.....
(2)

(b) Use your calculator to work out the value of

$$\sqrt{(15 + 27.25)}$$

.....
(2)

Leave blank

13. Eggs are sold in boxes.
A small box holds 6 eggs.

Hina buys x small boxes of eggs.

(a) Write down, in terms of x, the total number of eggs in these small boxes.

.....
(1)

A large box holds 12 eggs.

Hina buys 4 less of the large boxes of eggs than the small boxes.

(b) Write down, in terms of x, the number of large boxes she buys.

.....
(1)

(c) Find, in terms of x, the total number of eggs in the **large** boxes that Hina buys.

.....
(1)

(d) Find, in terms of x, the total number of eggs that Hina buys.
Give your answer in its simplest form.

.....
(2)

Page Total

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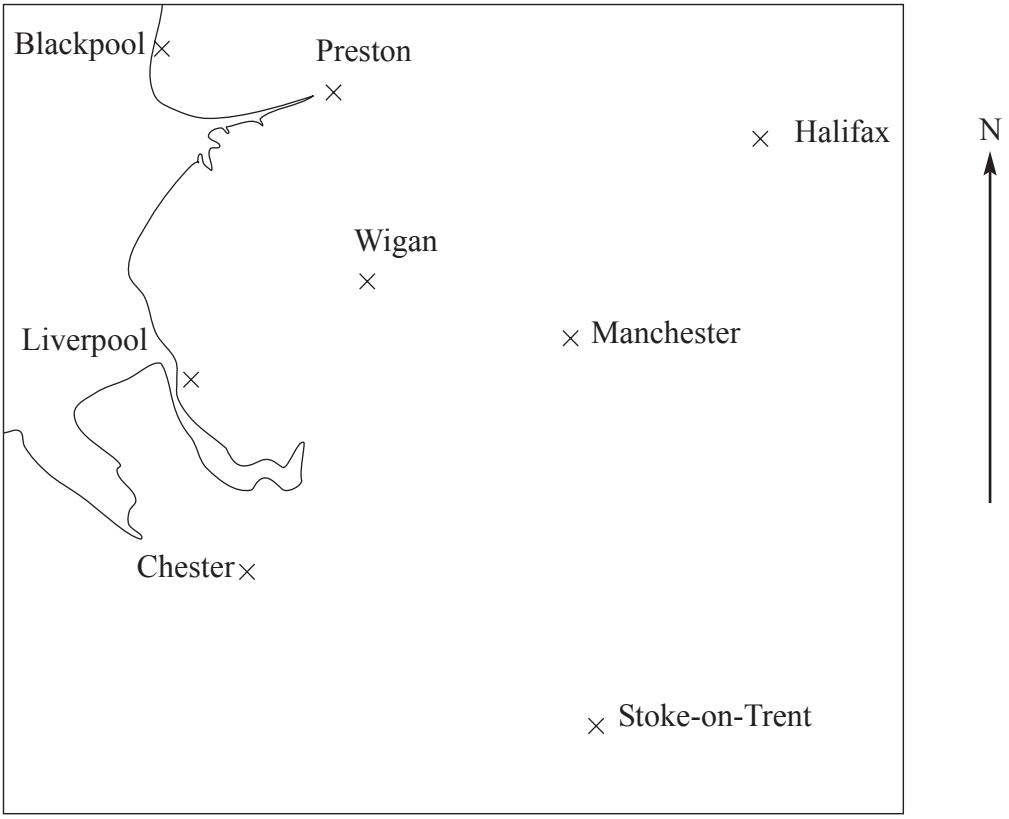
14. This is a map of part of Northern England.



Scale: 1 cm represents 10 km

A plane flies in a straight line from Preston to Stoke-on-Trent.

(a) How far does it fly?
Give your answer in kilometres.

..... km
(2)

(b) Measure and write down the bearing of Preston from Manchester.

°
.....
(1)

Leave blank

15. The diagram shows a sketch of triangle *ABC*.

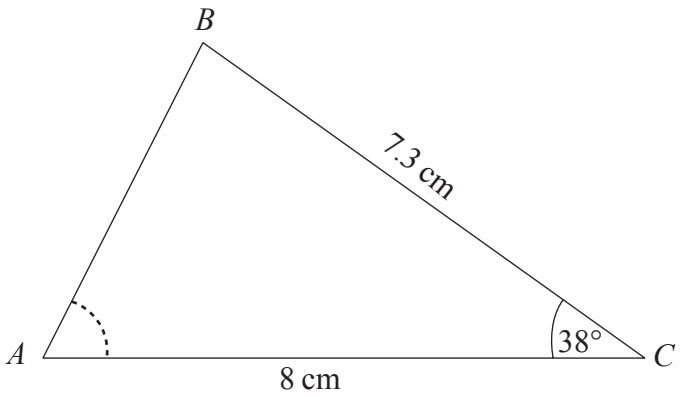


Diagram **NOT** accurately drawn

BC = 7.3 cm.
AC = 8 cm.
Angle *C* = 38°.

(a) Make an accurate drawing of triangle *ABC*.
The line *AC* has been accurately drawn.

A ——————————————— *C*

(2)

(b) Measure the size of angle *A* on your diagram.

..... °

(1)

Page Total

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16. A group of students visited the USA.
The table shows information about the numbers of hamburgers the students bought on the visit.

Number of hamburgers	Number of students
0	1
1	1
2	4
3	8
4	8
5	7

(a) Work out the total number of hamburgers that these students bought.

.....

(3)

One of these students bought a pair of sunglasses in the USA.
He paid $35.50
In England, an identical pair of sunglasses costs £26.99
The exchange rate is £1 = $1.42

(b) In which country were the sunglasses cheaper, and by how much?
Show all your working.

.....

(3)

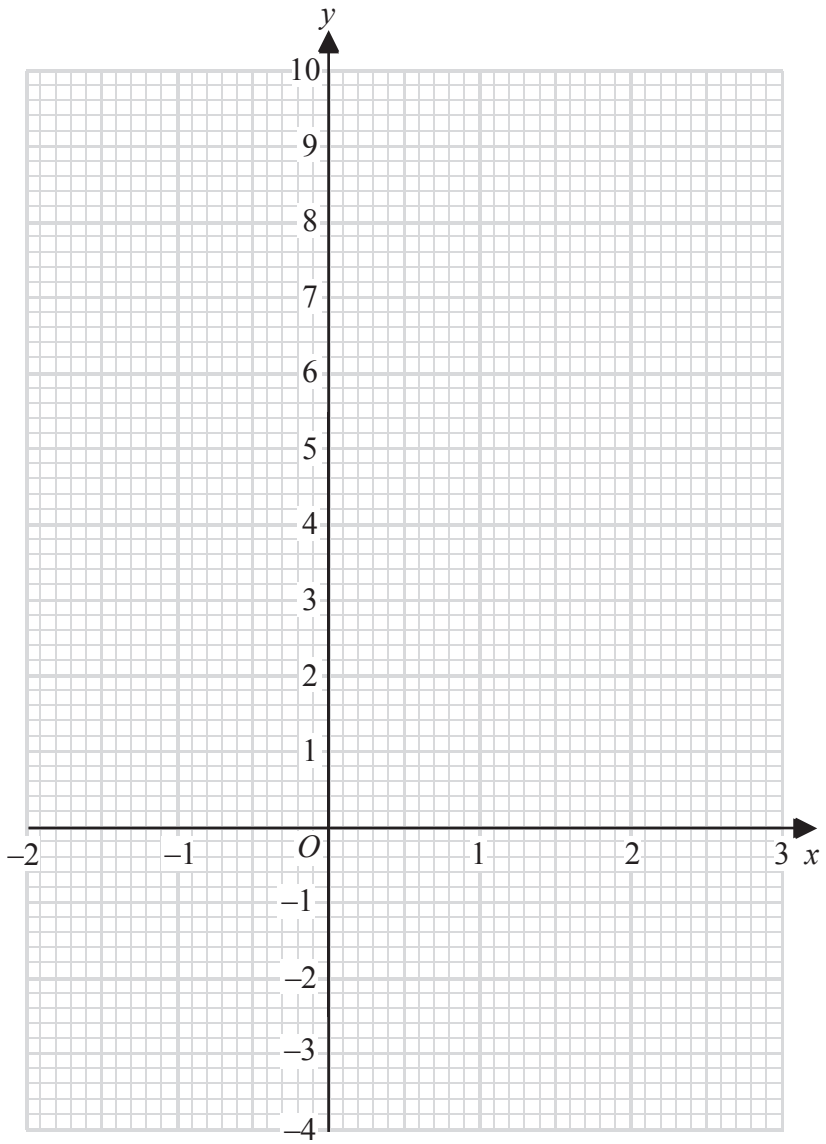
Leave blank

17. (a) Complete the table of values for $y = 2x + 3$

x	–2	–1	0	1	2	3
y		1	3			

(2)

(b) On the grid, draw the graph of $y = 2x + 3$



(2)

(c) Use your graph to find

(i) the value of y when $x = –1.3$

$y =$ .....

(ii) the value of x when $y = 5.4$

$x =$ .....

(2)

Page Total

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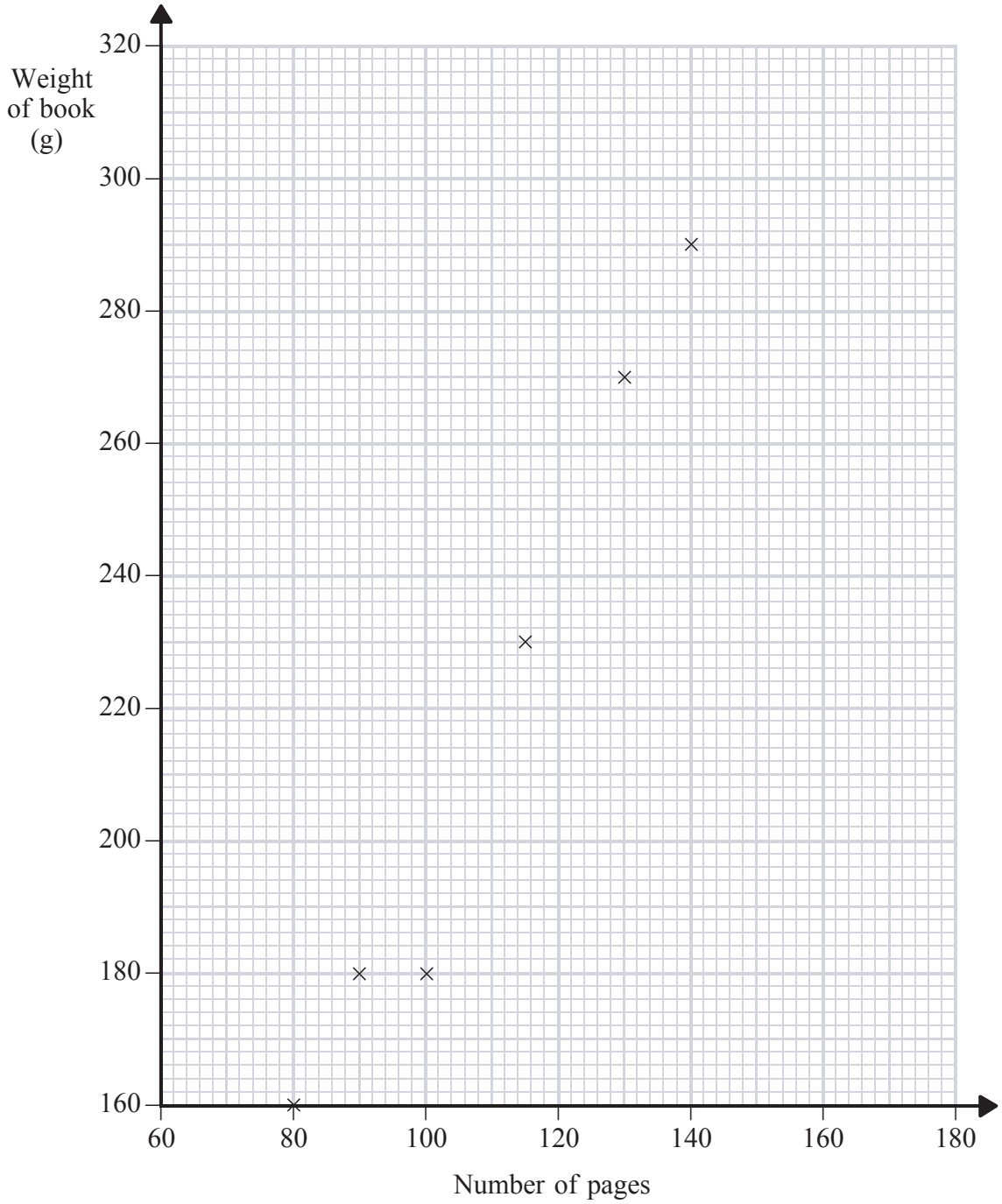
18. The table shows the number of pages and the weight, in grams, for each of 10 books.

Number of pages	80	130	100	140	115	90	160	140	105	150
Weight (g)	160	270	180	290	230	180	320	270	210	300

(a) Complete the scatter graph to show the information in the table.
The first 6 points in the table have been plotted for you.

(1)



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(b) For these books, describe the relationship between the number of pages and the weight of a book.

.....

.....

(1)

(c) Draw a line of best fit on the scatter diagram.

(1)

(d) Use your line of best fit to estimate

(i) the number of pages in a book of weight 280 g,

..... pages

(ii) the weight of a book with 120 pages.

..... g

(2)

19. This is a list of ingredients for making a pear & almond crumble for 4 people.

Ingredients for **4** people.
80 g plain flour
60 g ground almonds
90 g soft brown sugar
60 g butter
4 ripe pears

Work out the amount of each ingredient needed to make a pear & almond crumble for **10** people.

..... g plain flour

..... g ground almonds

..... g soft brown sugar

..... g butter

..... ripe pears

(3)

Page Total

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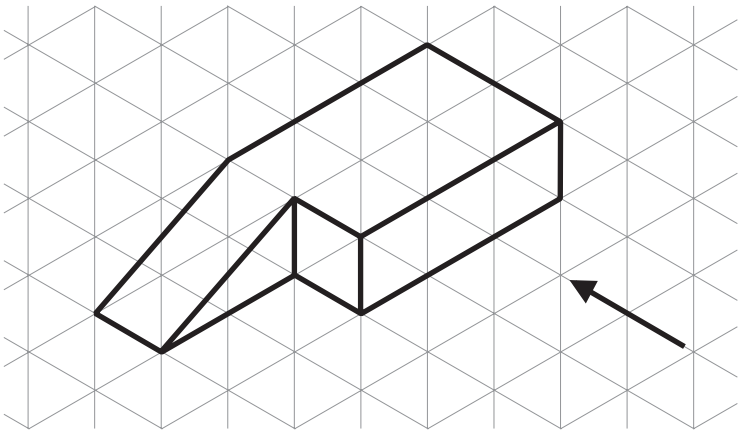
20. The diagram shows a solid object.



(a) In the space below, sketch the front elevation from the direction marked with an arrow.

(2)

(b) In the space below, sketch the plan of the solid object.

(2)

Leave blank

21. Martin cleaned his swimming pool.
He hired a cleaning machine to do this job.
The cost of hiring the cleaning machine was

£35.50 for the first day,
then £18.25 for each extra day.

Martin's total cost of hiring the machine was £163.25

(a) For how many days did Martin hire the machine?

..... days
(3)

Martin had to buy some cleaning materials.
The cost of the cleaning materials was £64.00 plus VAT at $17\frac{1}{2}$ %.

(b) Work out the total cost of the cleaning materials.

£ .....
(2)

22. (a) Solve $3x = 18$

$x =$ .....
(1)

(b) Expand $t(t-2)$

.....
(1)

(c) Factorise $3y - 12$

.....
(1)

Page Total

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23. The manager of a school canteen has made some changes.
She wants to find out what students think of these changes.

She uses this question on a questionnaire.

"What do you think of the changes in the canteen?"

☐ Excellent ☐ Very good ☐ Good

(a) Write down what is wrong about this question.

.....

.....

.....

(1)

This is another question on the questionnaire.

"How much money do you normally spend in the canteen?"

☐ A lot ☐ Not much

(b) Write down one thing that is wrong with this question.

.....

.....

.....

(1)

TOTAL FOR PAPER: 100 MARKS

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Page Total