

Centre No.					
Candidate No.					

Paper Reference						
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Surname	Initial(s)
Signature	

Examiner's use only

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Team Leader's use only

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Paper Reference(s)

5502/02

Edexcel GCSE

Mathematics A – 1387

Paper 2 (Calculator)

Foundation Tier

Tuesday 10 June 2003 – 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

Formulae sheet

Instructions to Candidates

In the boxes above, write your centre number, candidate number, your surname, initial(s), and your signature.

Check that you have the correct question paper.

Answer **ALL** the questions in the spaces provided in this question paper.

Supplementary answer sheets may be used.

Information for Candidates

The total mark for this paper is 100.

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.

This paper has 26 questions. There are no blank pages.

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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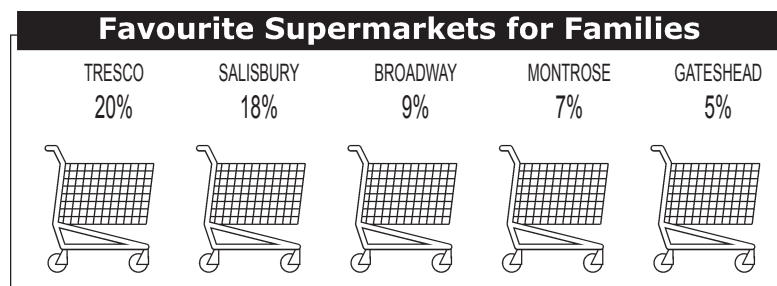
Answer ALL TWENTY SIX Questions.

Leave
blank

Write your answers in the spaces provided.

You must write down all stages in your working.

1. In a survey, some families were asked to name their favourite supermarket. Some of the results are shown in the diagram.



- (a) Write as a **fraction** the percentage whose favourite supermarket was Montrose.

.....
(1)

- (b) Write as a **decimal** the percentage whose favourite supermarket was Salisbury.

.....
(1)

200 families took part in the survey.

- (c) Work out the number of families whose favourite supermarket was Tesco.

.....
(2)

2. (a) Measure the length of the line.

*Leave
blank*



.....
(2)

The line is to be the **diameter** of a circle.

(b) Mark the centre of the circle with a cross.

(1)

(c) Draw the circle.

(1)

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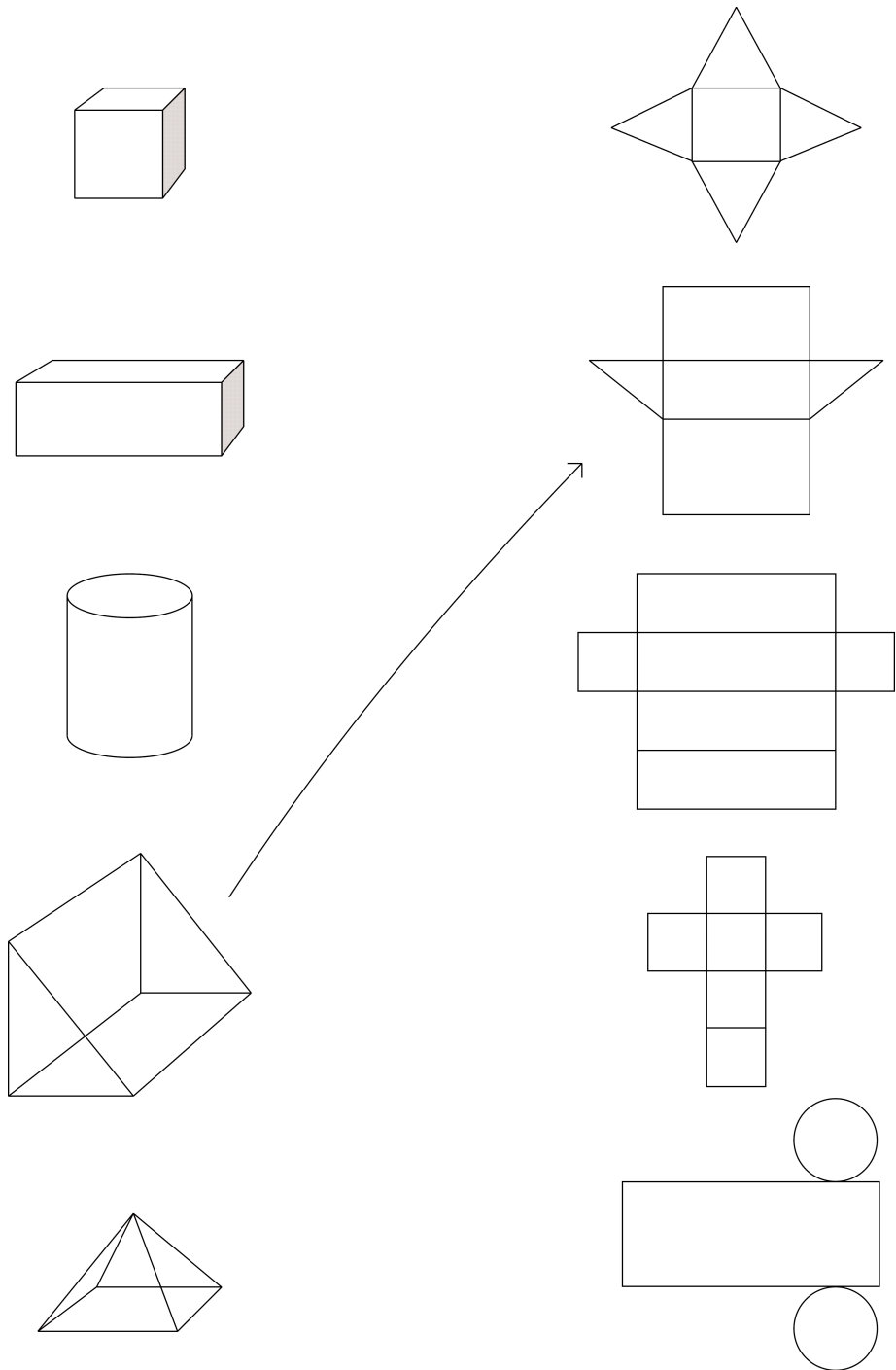
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3. The diagrams show some solid shapes and their nets.
An arrow has been drawn from one solid shape to its net.

Leave blank

Draw an arrow from each of the other solid shapes to its net.



(3)

4. Nassim buys petrol from his local garage.

Leave blank

On Monday, he filled up his tank.

On Tuesday, his tank was $\frac{3}{4}$ full.

(a) What fraction of the full tank of petrol had he used?

.....
(1)

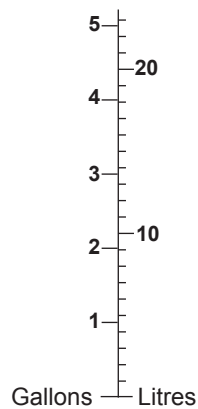
(b) Write $\frac{3}{4}$ as a decimal.

.....
(1)

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

.....
(1)

The garage has a diagram for converting gallons to litres.



(d) Use the diagram to convert

(i) 2 gallons to litres,

..... litres

(ii) 3.5 gallons to litres.

..... litres
(2)

Page Total

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5. Here is part of a train timetable from Crewe to London.

Leave blank

Station	Time of Leaving
Crewe	08 00
Wolverhampton	08 40
Birmingham	09 00
Coventry	09 30
Rugby	09 40
Milton Keynes	10 10

(a) At what time should the train leave Coventry?

.....
(1)

The train should arrive in London at 10 45

(b) How long should the train take to travel from Crewe to London?

.....
(2)

Verity arrived at Milton Keynes station at 09 53

(c) How many minutes should she have to wait before the 10 10 train leaves?

..... minutes
(1)

6. A school has a photocopier and a printing machine.
The cost of using the photocopier is given by the rule

Leave blank

$$\boxed{\begin{array}{c} \text{cost of} \\ \text{using the} \\ \text{photocopier} \end{array}} = \boxed{\begin{array}{c} \text{number of} \\ \text{copies} \end{array}} \times \boxed{\begin{array}{c} \text{cost of} \\ \text{one copy} \end{array}}$$

The cost of one copy is 4 pence.

Geoff makes 96 copies.

- (a) Work out the cost of using the photocopier to make 96 copies.

£
(2)

The cost of using the printing machine is given by the following rule

$$\boxed{\begin{array}{c} \text{cost of} \\ \text{using the} \\ \text{printing} \\ \text{machine} \end{array}} = \boxed{\begin{array}{c} \text{number of} \\ \text{copies} \end{array}} \times \boxed{\begin{array}{c} \text{cost of} \\ \text{one copy} \end{array}} + \boxed{\begin{array}{c} \text{copy fee} \end{array}}$$

The cost of one copy is 3 pence.

The copy fee is 40 pence.

Charlotte makes 96 copies using the printing machine.

- (b) Work out the difference in their costs between Geoff and Charlotte.

£
(2)

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7. 54 327 people watched a concert.

*Leave
blank*

(a) Write 54 327 to the nearest thousand.

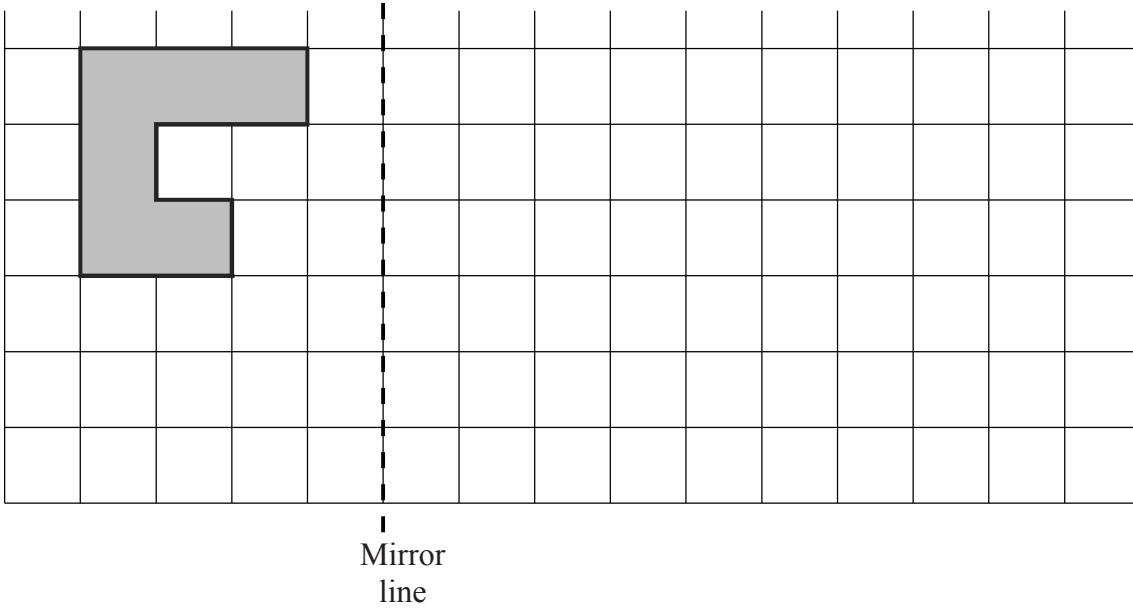
.....
(1)

(b) Write down the value of the 5 in the number 54 327.

.....
(1)

8. A shaded shape is shown on the grid of centimetre squares.

Leave blank



(a) Work out the perimeter of the shaded shape.

.....cm
(1)

(b) Work out the area of the shaded shape.

.....cm²
(1)

(c) Reflect the shaded shape in the mirror line.

(2)

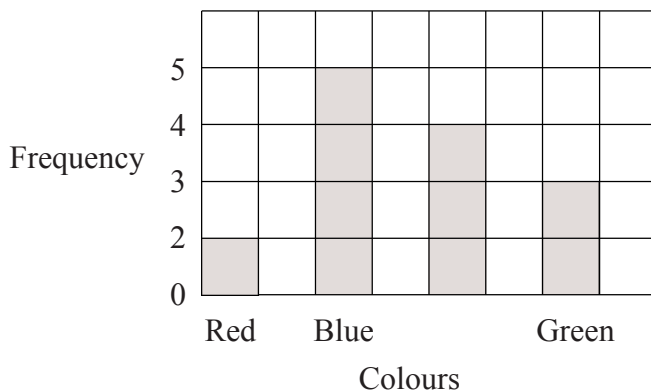
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9. Ray and Clare are pupils at different schools. They each did an investigation into their teachers' favourite colours.

Here is Ray's bar chart of his teachers' favourite colours.



- (a) Write down two things that are wrong with Ray's bar chart.

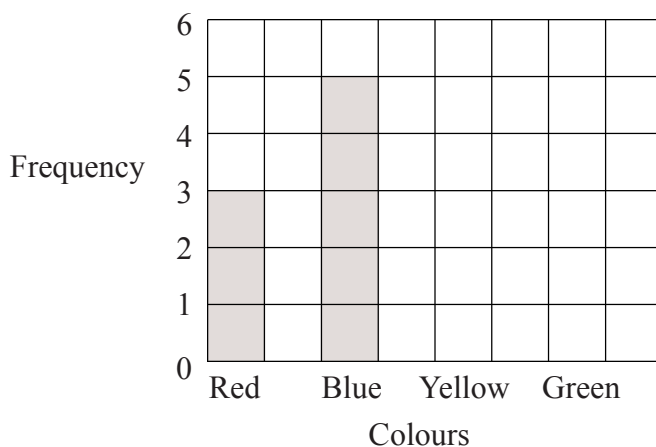
.....

.....

(2)

Clare drew a bar chart of her teachers' favourite colours.

Part of her bar chart is shown below.



4 teachers said that Yellow was their favourite colour.
2 teachers said that Green was their favourite colour.

- (b) Complete Clare's bar chart.

(2)

(c) Which colour was the mode for the teachers that Clare asked?

*Leave
blank*

.....
(1)

(d) Work out the number of teachers Clare asked.

.....
(1)

(e) Write down the fraction of the number of teachers that Clare asked who said Red was their favourite colour.

.....
(1)

10. Barry and Kath are studying a number pattern.

The first three numbers in the number pattern are 1, 2, 4

Barry says that the next number is 8.

Kath says the next number is 7.

Explain why both Barry and Kath could be right.

.....
.....
.....
(2)

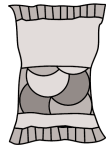
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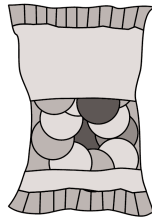
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11. Audrey sells packets of sweets.
There are three sizes of packets.

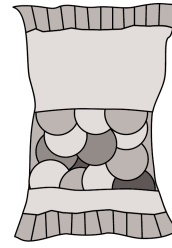
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blank*



Small



Medium



Large

There are n sweets in the small packet.

There are twice as many sweets in the medium packet as there are in the small packet.

- (a) Write down an expression, in terms of n , for the number of sweets in the medium packet.

.....
(1)

There are 15 more sweets in the large packet than in the medium packet.

- (b) Write down an expression, in terms of n , for the number of sweets in the large packet.

.....
(1)

A small packet of sweets costs 20p.

Sebastian buys q small packets of sweets.

- (c) Write down an expression, in terms of q , for the cost in pence of the sweets.

..... pence
(1)

12. Andy did a survey of the number of cups of coffee some pupils in his school had drunk yesterday.

Leave blank

The frequency table shows his results.

Number of cups of coffee	Frequency
2	1
3	3
4	5
5	8
6	5

(a) Work out the number of pupils that Andy asked.

.....
(2)

Andy thinks that the average number of drinks pupils in his survey had drunk is 7.

(b) Explain why Andy cannot be correct.

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

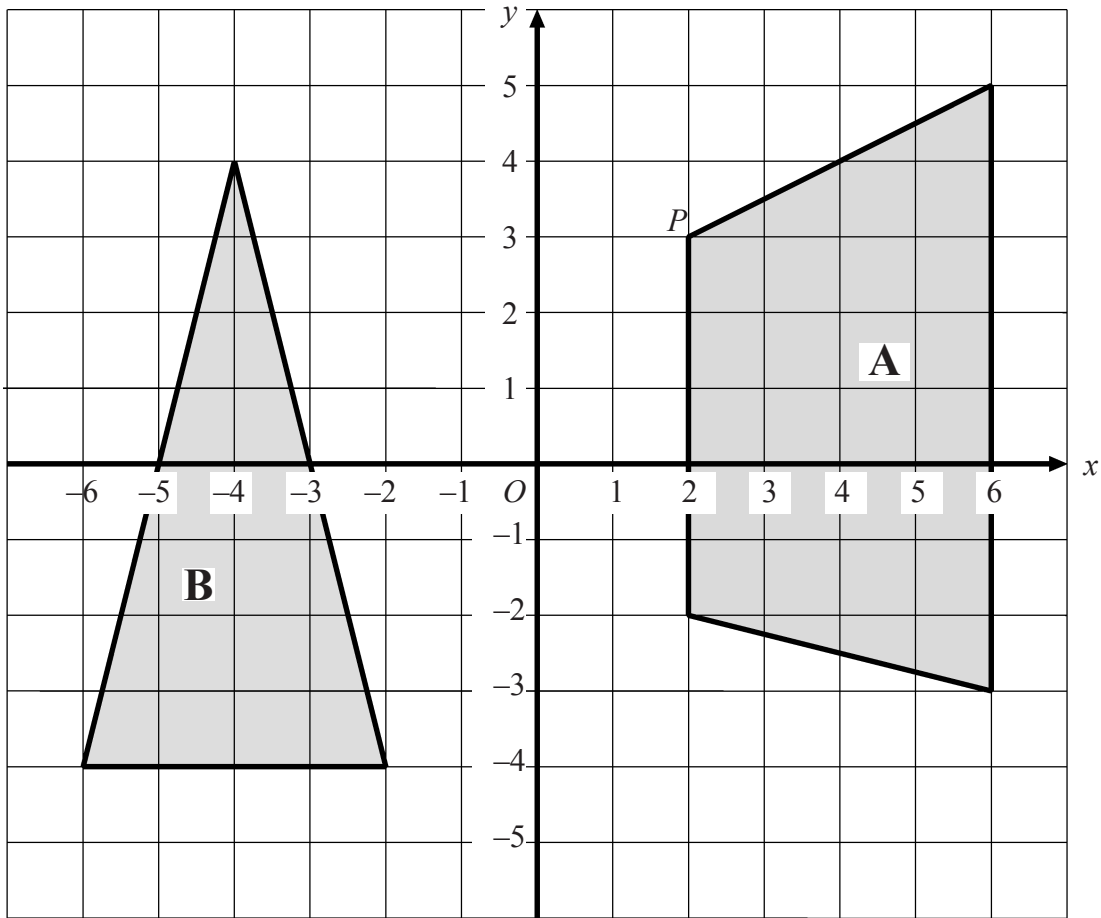
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13.

Leave blank



The diagram shows two shapes.

(a) Write down the mathematical name for the shape **A**.

.....
(1)

(b) Write down the coordinates of the point *P*.

(..... ,)
.....
(1)

(c) Write down the mathematical name of the triangle **B**.

.....
(1)

The coordinates of another point are $(-2, -4)$.

(d) Mark this point on the grid.
Label it *Q*.

(1)

14. Every day, a quarter of a million babies are born in the world.

*Leave
blank*

(a) Write a quarter of a million using figures.

.....
(1)

(b) Work out the number of babies born in 28 days.
Give your answer in millions.

..... million
(2)

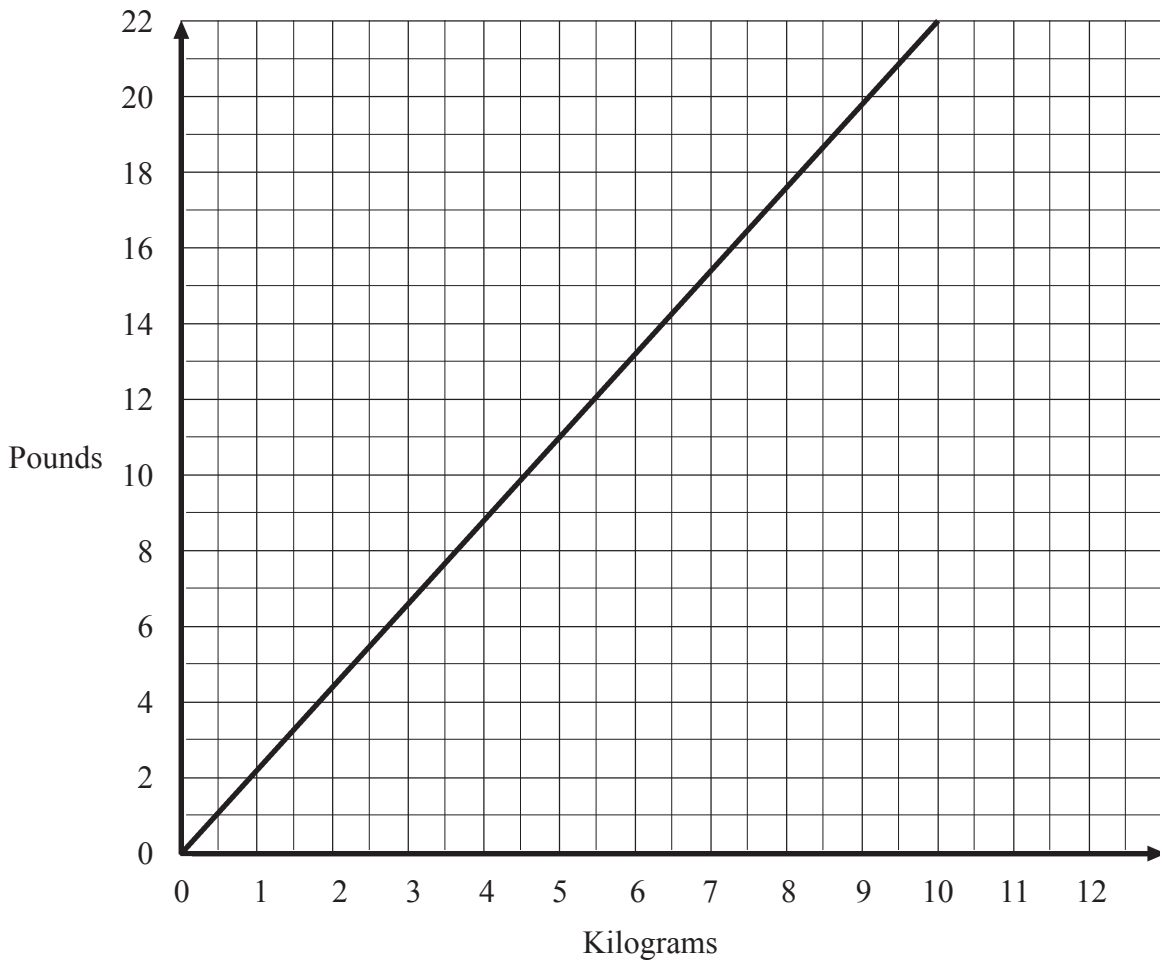
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15.

Leave
blank



The conversion graph above can be used for changing between kilograms and pounds.

(a) Use the graph to change 22 pounds to kilograms.

.....kg
(1)

(b) Use the graph to change 2.5 kilograms to pounds.

.....pounds
(1)

Firoza weighs 110 pounds.

(c) Change 110 pounds to kilograms.

.....kg
(3)

16. Simon repairs computers.

He charges

£56.80 for the first hour he works on a computer and
£42.50 for each extra hour's work.

Yesterday Simon repaired a computer and charged a total of £269.30

(a) Work out how many hours Simon worked yesterday on this computer.

.....
(2)

Simon reduces his charges by 5% when he is paid promptly.
He was paid promptly for yesterday's work on the computer.

(b) Work out how much he was paid.

£
(3)

17. Use your calculator to work out

$$(2.3 + 1.8)^2 \times 1.07$$

Write down all the figures on your calculator display.

.....
(2)

*Leave
blank*

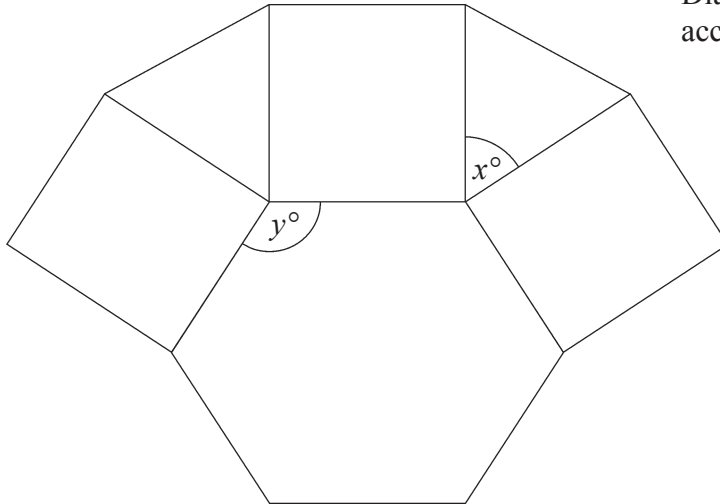
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18.

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blank

Diagram NOT
accurately drawn



This is part of the design of a pattern found at the theatre of Diana at Alexandria.

It is made up of a regular hexagon, squares and equilateral triangles.

(a) Write down the size of the angle marked x° .

.....
(1)

(b) Work out the size of the angle marked y° .

.....
(2)

The area of each equilateral triangle is 2 cm^2 .

(c) Work out the area of the regular hexagon.

..... cm^2
(2)

19. In 2002, Shorebridge Chess Club's total income came from a council grant and members' fees.

Leave blank

Council grant £50
Members' fees 240 at £5 each.

(a) (i) Work out the total income of the club for the year 2002.

£

(ii) Find the council grant as a fraction of the club's total income for the year 2002.

Give your answer in its simplest form.

.....
(3)

In 2001, the club's total income was £1000.
The club spent 60% of its total income on a hall.
It spent a further £250 on prizes.

(b) Work out the ratio

The amount spent on the hall : the amount spent on prizes.

Give your answer in its simplest form.

.....
(3)

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20.

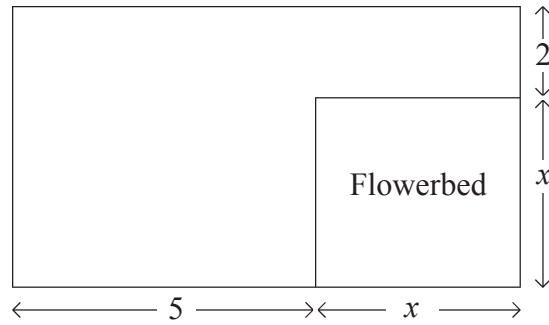


Diagram **NOT** accurately drawn

Leave blank

The diagram represents a garden in the shape of a rectangle.
All measurements are given in metres.
The garden has a flowerbed in one corner.
The flowerbed is a square of side x .

- (a) Write down an expression, in terms of x , for the shortest side of the garden.

.....
(1)

- (b) Find an expression, in terms of x , for the perimeter of the garden.
Give your answer in its simplest form.

.....
(2)

The perimeter of the garden is 20 metres.

- (c) Find the value of x .

.....
(2)

21. Bhavana asked some people which region their favourite football team came from. The table shows her results.

Leave blank

Region	Frequency	
Midlands	22	
London	36	
Southern England	8	
Northern England	24	

Complete the accurate pie chart to show these results.
Use the circle given below.



(3)

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Turn over

Leave blank

22. (a) Simplify $5p + 2q - 3p - 3q$

.....
(2)

$$y = 5x - 3$$

(b) Find the value of x when $y = 4$

$x =$
(2)

23. The table shows some rows of a number pattern.

Row 1	1	$= \frac{1 \times 2}{2}$
Row 2	$1 + 2$	$= \frac{2 \times 3}{2}$
Row 3	$1 + 2 + 3$	$= \frac{3 \times 4}{2}$
Row 4	$1 + 2 + 3 + 4$	
Row 8		

(a) In the table, complete row 4 of the number pattern. (1)

(b) In the table, complete row 8 of the number pattern. (1)

(c) Work out the sum of the first 100 whole numbers.

*Leave
blank*

.....
(1)

24. Here are the times, in minutes, taken to change some tyres.

5 10 15 12 8 7 20 35 24 15

20 33 15 25 10 8 10 20 16 10

In the space below, draw a stem and leaf diagram to show these times.

(3)

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25.

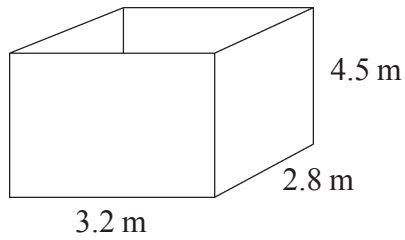


Diagram **NOT**
accurately drawn

*Leave
blank*

The diagram represents a large tank in the shape of a cuboid.
The tank has a base.
It does not have a top.
The width of the tank is 2.8 metres.
The length of the tank is 3.2 metres.
The height of the tank is 4.5 metres.

The outside of the tank is going to be painted.
1 litre of paint will cover 2.5 m^2 of the tank.
The cost of paint is £2.99 per litre.

Calculate the cost of the paint needed to paint the outside of the tank.

£
(5)

26. Change 2.5 m^2 to cm^2 .

..... cm^2
(2)

TOTAL FOR PAPER: 100 MARKS

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