WJEC CBAC

GCSE

4370/03

MATHEMATICS – LINEAR
PAPER 1
FOUNDATION TIER

A.M. MONDAY, 9 June 2014

1 hour 45 minutes

Suitable for Modified Language Candidates

CALCULATORS ARE NOT TO BE USED FOR THIS PAPER

ADDITIONAL MATERIALS

A ruler, a protractor and a pair of compasses may be required.

INSTRUCTIONS TO CANDIDATES

Use black ink or black ball-point pen. Do not use gel pen or correction fluid.

Write your name, centre number and candidate number in the spaces at the top of this page.

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

If you run out of space, use the continuation page at the back of the booklet, taking care to number the question(s) correctly.

Take π as 3·14.

INFORMATION FOR CANDIDATES

You should give details of your method of solution when appropriate.

Unless stated, diagrams are not drawn to scale.

Scale drawing solutions will not be acceptable where you are asked to calculate.

The number of marks is given in brackets at the end of each question or part-question.

You are reminded that assessment will take into account the quality of written communication (including mathematical communication) used in your answer to question **3**.

For Examiner's use only		
Question	**Maximum Mark**	**Mark Awarded**
1.	10	
2.	6	
3.	6	
4.	3	
5.	6	
6.	6	
7.	3	
8.	4	
9.	4	
10.	6	
11.	4	
12.	2	
13.	6	
14.	5	
15.	6	
16.	4	
17.	4	
18.	4	
19.	3	
20.	3	
21.	5	
Total	100	

Formula List

Area of trapezium $= \frac{1}{2}(a + b)h$
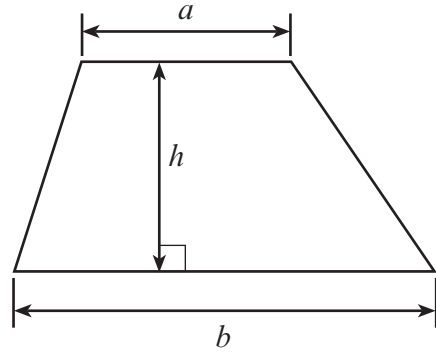
Volume of prism = area of cross-section × length

1. *(a)* (i) Write down, in figures, the number three million, four hundred and eleven thousand and two. [1]

....

(ii) Write down, in words, the number 72 065. [1]

....

(b) Use the following list of numbers.

17   6   53   40   63   36   39   81

Write down

(i) two numbers that add up to 80, [1]

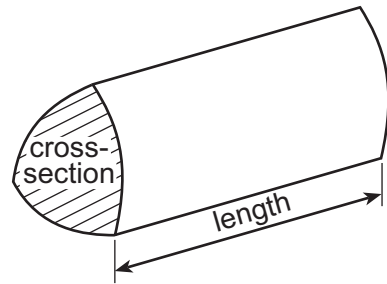..

(ii) the number that is the difference between 67 and 28, [1]

....

(iii) a multiple of 7, [1]

....

(iv) the answer when 48 is divided by 8, [1]

....

(v) the square of 9. [1]

....

(c) Write down a factor of 96 which is between 10 and 20. [1]

....

(d) Write 6571

(i) correct to the nearest 10, [1]

....

(ii) correct to the nearest 100. [1]

....

2. *(a)* Each of the digits 5, 2, 6 and 7 is used once to make a four-digit number.

(i) What is the largest number that can be made? [1]

....

(ii) What is the smallest even number that can be made? [1]

....

(b) Find the value of each of the following.

(i) 0·2 × 0·3 [1]

....

....

(ii) 6·2 − 3·28 [1]

....

....

....

(c) Estimate the value of 2·9 × 98·2. [2]

....

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3. *You will be assessed on the quality of your written communication in this question.*

A window cleaner takes 15 minutes to clean each window in a large building.
He uses the following formula when asking for payment for his work.

payment = £8 × number of hours worked + call-out charge

Calculate the payment for cleaning 20 windows when the call-out charge is £12. [6]

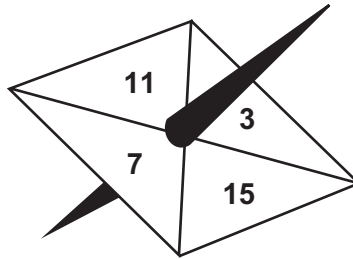© WJEC CBAC Ltd.   (4370-03)   **Turn over.**

4. Describe the chance of each of the following events occurring. Choose the best word from those given below.

impossible   unlikely   even chance   likely   certain

(a) You get an odd number when the following spinner is spun once.   [1]

....

(b) You win a raffle when 200 tickets are sold and you have bought one.   [1]

....

(c) You get an even number when a fair dice is rolled once.   [1]

....

5. *(a)* Write down the next term in **each** of the following sequences. [2]

   (i)   15,   21,   27,   33, ...

   (ii) 62,   56,   51,   47, ...

   ....

   ....

(b) Describe, in words, the rule for continuing the sequence 48, 12, 3, $\frac{3}{4}$, ... [1]

   ....

(c) Find the value of $p = 3a + 4b - 6c$ when $a = 2$, $b = 3$ and $c = -1$. [2]

   ....

   ....

   ....

(d) Simplify $5x + 2x - 3x$. [1]

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6. Two rectangles, each 9 cm by 3 cm, are placed side by side. A rectangle, 8 cm by 3 cm, is placed across the other rectangles so that they make the H shape shown in the diagram.
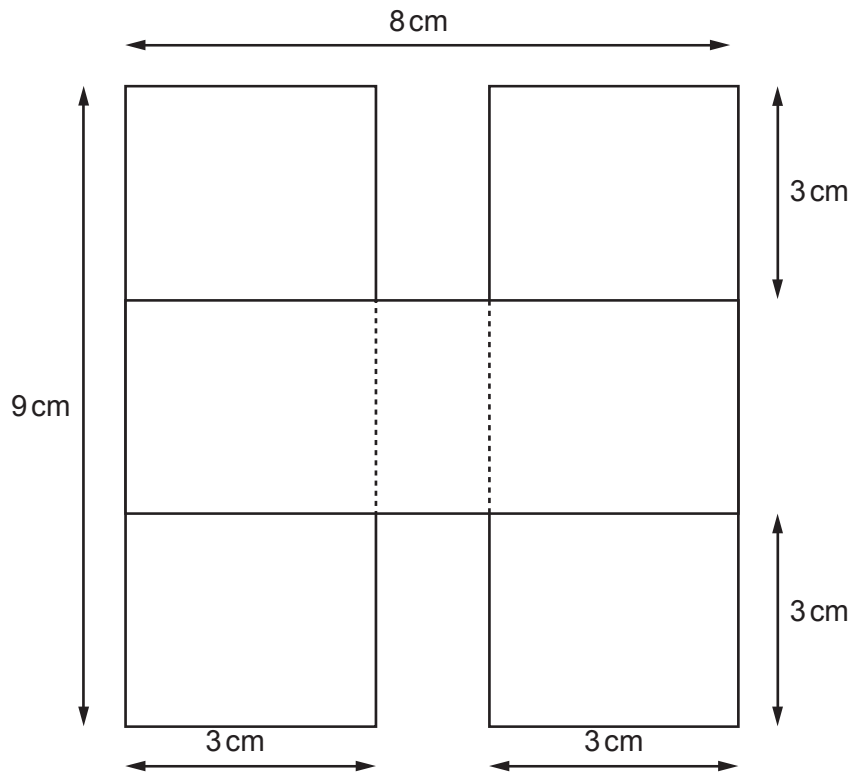

Diagram not drawn to scale

(a) Calculate the perimeter of the shape. [3]

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(b) Calculate the area of the shape.
Write down the units of your answer. [3]

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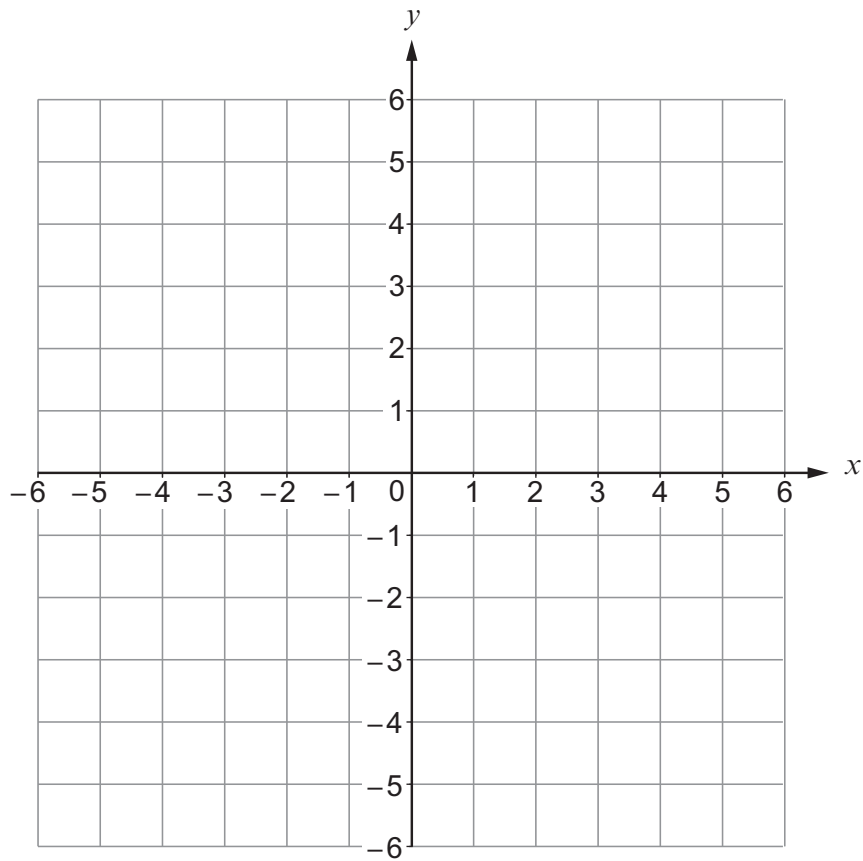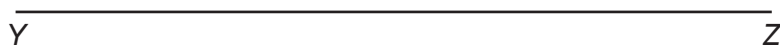
7. On the squared paper below, plot the points $A(-4, 2)$, $B(-1, -5)$ and $C(4, 3)$. [3]

Turn over.

8. *(a)* Complete an accurate drawing of triangle *XYZ* in which *YZ* = 10 cm, $X\hat{Y}Z$ = 62° and $X\hat{Z}Y$ = 47°.
The side *YZ* has been drawn for you. [3]

Y _____ Z

(b) Write down the special name given to an angle which is more than 90°, but less than 180°. [1]

....

9. A rectangular tank has a length of 20 cm, a width of 15 cm and a height of 10 cm.
Water is poured into the tank until it is half full.
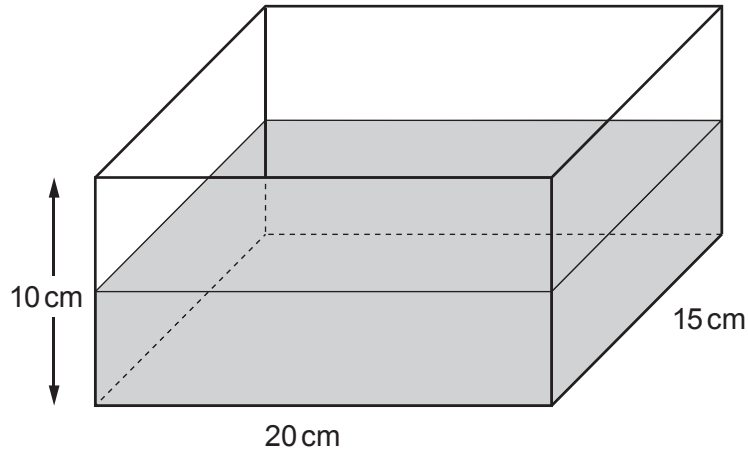Calculate the volume of the water in **litres**. [4]

10 cm

15 cm

20 cm

Diagram not drawn to scale

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10. The table shows typical ranges for fares and journey times for London taxis.

London Taxis		Tariff 1	Tariff 2	Tariff 3
Distance (up to)	Approximate journey time	Monday to Friday 06:00 to 20:00	Monday to Friday 20:00 to 22:00 Saturday and Sunday 06:00 to 22:00	Every night 22:00 to 06:00
1 mile	6 - 13 mins	£5.60 - £8.60	£5.60 - £8.80	£6.60 - £8.80
2 miles	10 - 20 mins	£8.40 - £13.40	£8.80 - £13.60	£10.20 - £14.40
4 miles	16 - 30 mins	£15 - £21	£16 - £22	£17 - £27
6 miles	28 - 40 mins	£23 - £28	£28 - £31	£28 - £32

Example:
A journey of 5 miles at midnight would cost between £28 and £32, depending on the length of time of the journey.

Use the table to answer the following questions.

(a) Peter hires a taxi on a Thursday at 10:25 a.m. for a journey of 2 miles.
What is the least amount he should be charged? What would be the earliest time he would get there? [2]

....

Least amount charged .... Earliest time ....

(b) Joanna and her 4 friends are out together on a Friday at 23:30 p.m.

They are staying at the same hotel, which is about $3\frac{1}{2}$ miles away.

They could hire a taxi or they could buy tickets on the underground tube costing £4 each.
There are 5 friends. Explain how it is possible that hiring a taxi might
- save money, or
- cost more money.

You must show all your working for both of these possibilities. [4]

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11. *(a)* Draw all the lines of symmetry on the following diagram. [2]
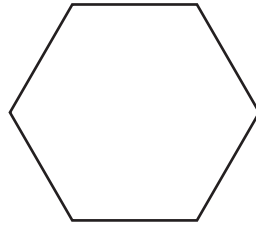
(b) Draw two more shapes so that the completed pattern has rotational symmetry of order 4 about *O*. [2]
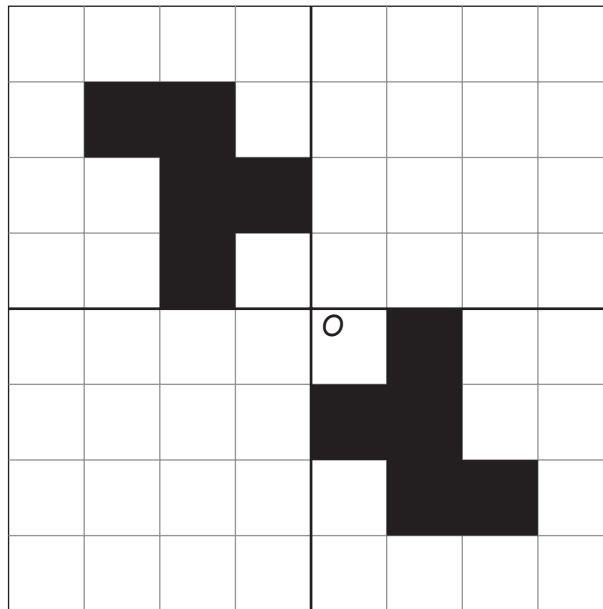
12. Calculate the value of $\frac{3}{8}$ as a decimal. [2]

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13. There are four balls numbered 2, 2, 3 and 4 respectively in machine A. There are four balls numbered 3, 4, 5 and 6 respectively in machine B.
In a game, both machines A and B select one ball at random.
The score for the game is a 2-digit number. The number from machine A is the units digit. The number from machine B is the tens digit.

For example, if the number on the ball from machine A is 4 and the number on the ball from machine B is 3, the score is 34.

(a) Complete the following table to show all the possible scores. [2]

Machine B					
6	62	....	63	....
5	52	....	....	54
4	42	42	....	44
3	32	32	33	....
	2	2	3	4

Machine A

A player wins a prize by getting a score of 42 or less.

(b) (i) Matthew plays the game once. What is the probability that he wins a prize? [2]

....

....

(ii) One day 400 people play this game once. Approximately how many would you expect to win a prize? [2]

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....

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14. *(a)* Find the size of angle x. [2]
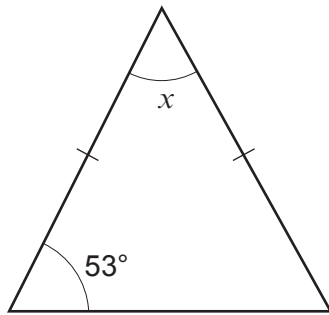
Diagram not drawn to scale

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$x =$ .... °

(b) Find the size of angle y. [3]
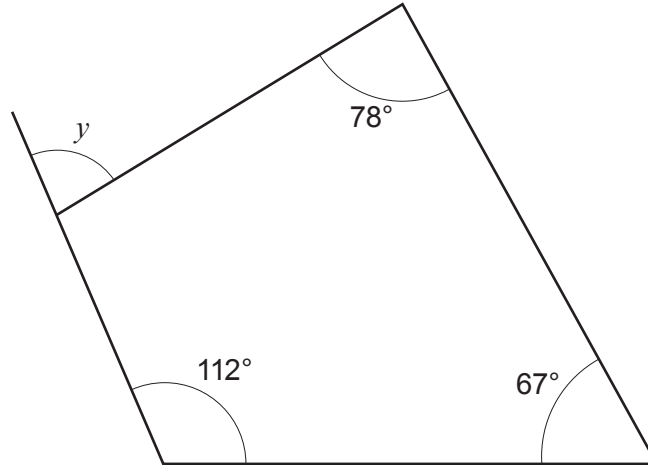
Diagram not drawn to scale

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$y =$ .... °

15. A festival took place over 7 days in August.
Each day, the number of people at the festival and the amount of money taken by the ice cream sellers were recorded.
The table below shows the results.

Number of people	5500	6000	5600	5200	5800	6400	6200
Amount taken by ice cream sellers, in £	280	400	280	210	320	420	410

(a) On the graph paper below, draw a scatter diagram of these results. [2]

Amount taken by ice
cream sellers, in £

Number of people
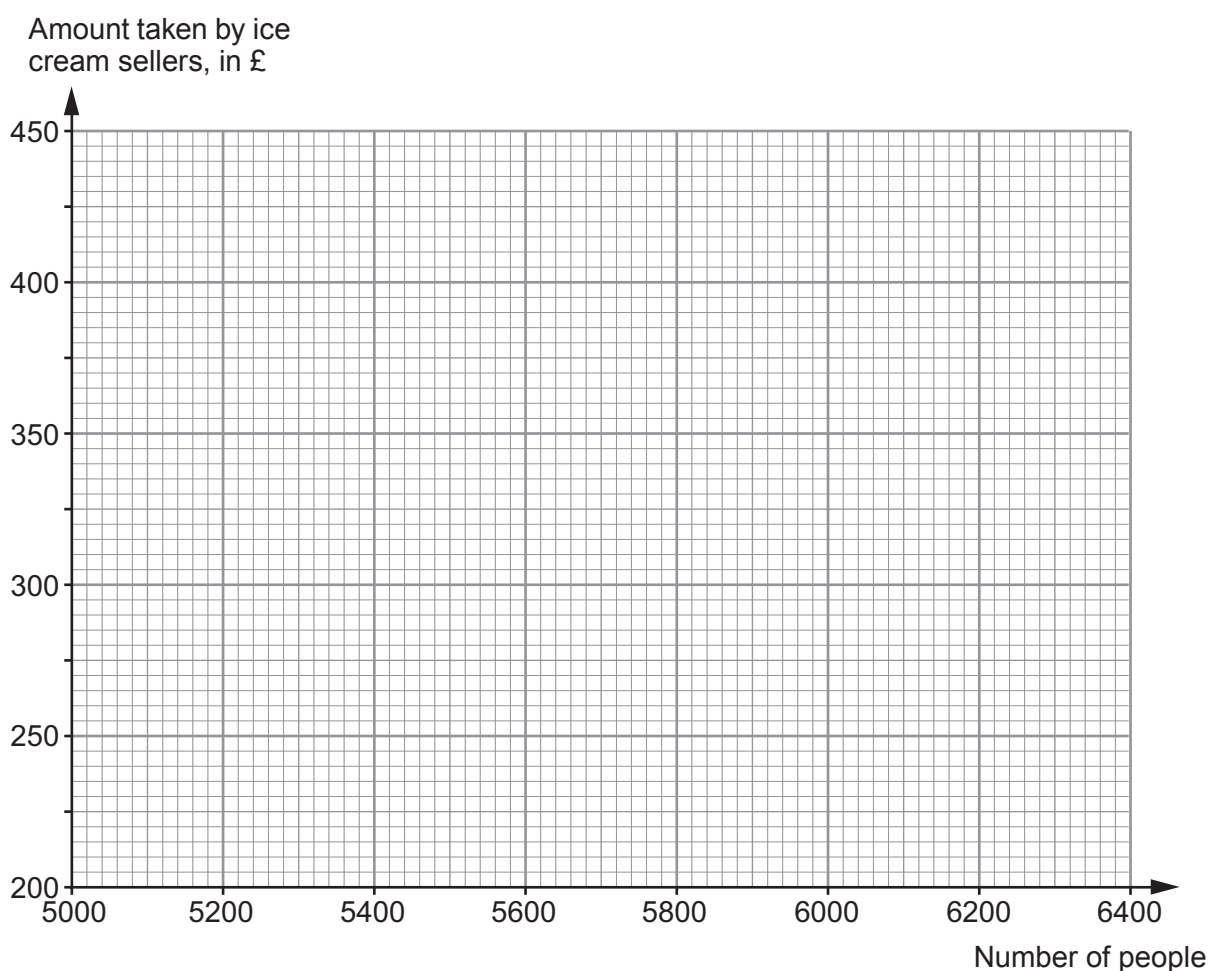
(b)   Write down the type of correlation that is shown by the scatter diagram.   [1]

....

(c)   Draw, by eye, a line of best fit on your scatter diagram   [1]

(d)   Estimate the amount of money that may have been taken by ice cream sellers during one day if 6100 people attended the festival on that day.   [1]

....

(e)   Why isn't it possible to work out how much a typical ice cream costs at the festival?   [1]

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16. The area of the trapezium is equal to the area of the right-angled triangle.

6 cm

5 cm

10 cm

10 cm

x cm
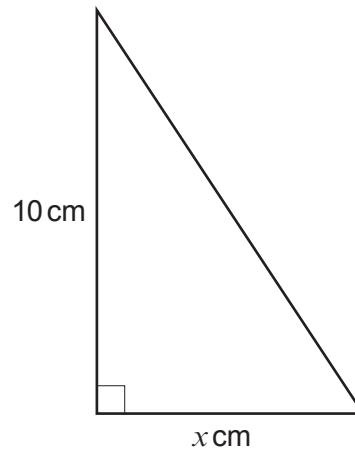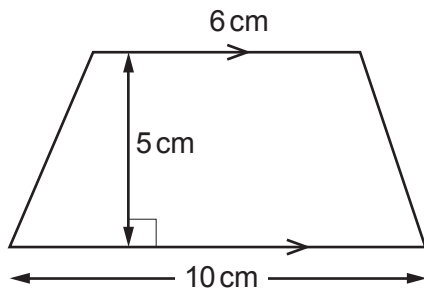
Diagrams not drawn to scale

Calculate the value of x. [4]

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17. The pie charts show the proportion of boys to girls in class A and class B.

Class A
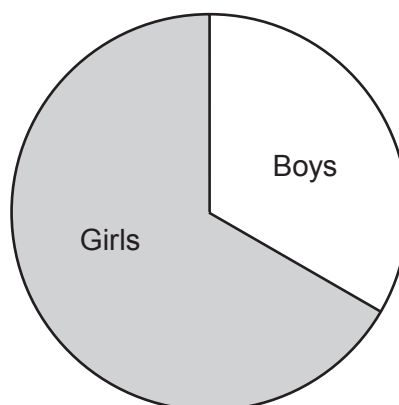
Class B

There are more pupils in class B than in class A.

There are 4 boys in class A.

There are $1\frac{1}{2}$ times as many girls in class B than in class A.

How many boys are there in class B? [4]

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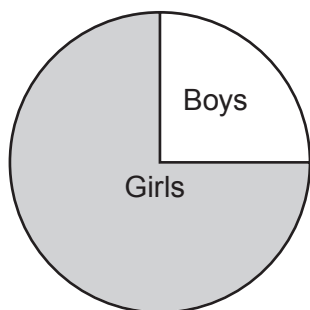..

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18. *(a)* Solve $\dfrac{x}{2} + 18 = 26$. [2]

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(b) Expand $y\left(y^2 + 4\right)$. [2]

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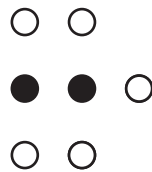
19. Patterns made with black and white circles are shown below.

Pattern 1	Pattern 2	Pattern 3
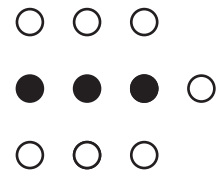
Complete the following statements, in terms of *n*. [3]

'There will be .... black circles in Pattern *n*.'

'There will be .... white circles in Pattern *n*.'

....

....

20. In the diagram, angles a, b and c are measured in degrees.

Diagram not drawn to scale

Find the size of angle c in terms of a and b.
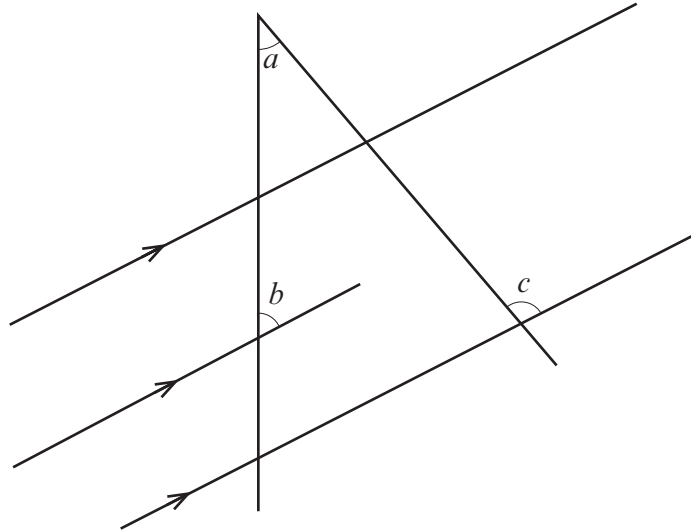You must show all your working, which may be indicated on the diagram. [3]

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21. Maggie has lots of tiles.
All of her tiles are in the shape of regular polygons.
The edges of all the tiles have the same length.

She places two 12-sided tiles to meet edge-to-edge.
Maggie places a different-shaped tile with these two tiles.
She finds that the 3 tiles tessellate.

By calculation, find the number of sides of this third tile.
You must show all your working. [5]

END OF PAPER

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Question number	Additional page, if required. Write the question number(s) in the left-hand margin.	Examiner only

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