Surname	Centre Number	Candidate Number
Other Names		0

WJEC CBAC

GCSE

4370/04

A14-4370-04

MATHEMATICS – LINEAR
PAPER 2
FOUNDATION TIER

A.M. MONDAY, 10 November 2014

1 hour 45 minutes

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

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ADDITIONAL MATERIALS

A calculator will be required for this paper.

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

INSTRUCTIONS TO CANDIDATES

Use black ink or black ball-point pen.

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.

Take π as 3·14 or use the π button on your calculator.

INFORMATION FOR CANDIDATES

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

Unless stated, diagrams are not drawn to scale.

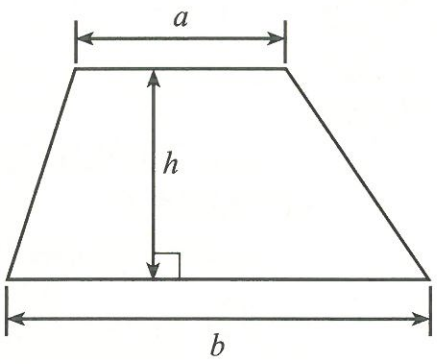
Scale drawing solutions will not be acceptable where you are asked to calculate.

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

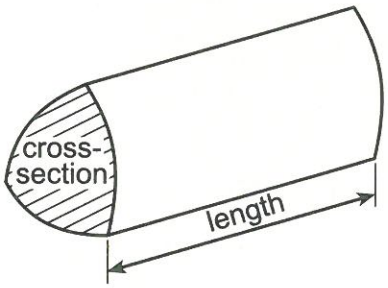
You are reminded that assessment will take into account the quality of written communication (including mathematical communication) used in your answer to question **8**.

Formula List

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



Volume of prism = area of cross-section × length



Examiner only

1. Toby buys

2 jars of coffee at £4.46 each,
3 packets of tea at £3.87 each,
4 packets of sandwiches at £2.32 each.

(a) How much does he spend altogether? [4]

(b) Toby pays with two £20 notes.
How much change does he receive? [2]

2. Circle the quantity that is the appropriate estimate for each of the following. [4]

Weight of a male Year 11 pupil	65 kg	65 g	65 mg	65 km
Capacity of a tea cup	250 cm^2	250 cm^3	250 litres	250 mm^3
Distance from Dover to Calais	41 m	41 cm	41 km	41 mm
Width of an ordinary house window	210 m	210 cm	210 mm	210 km

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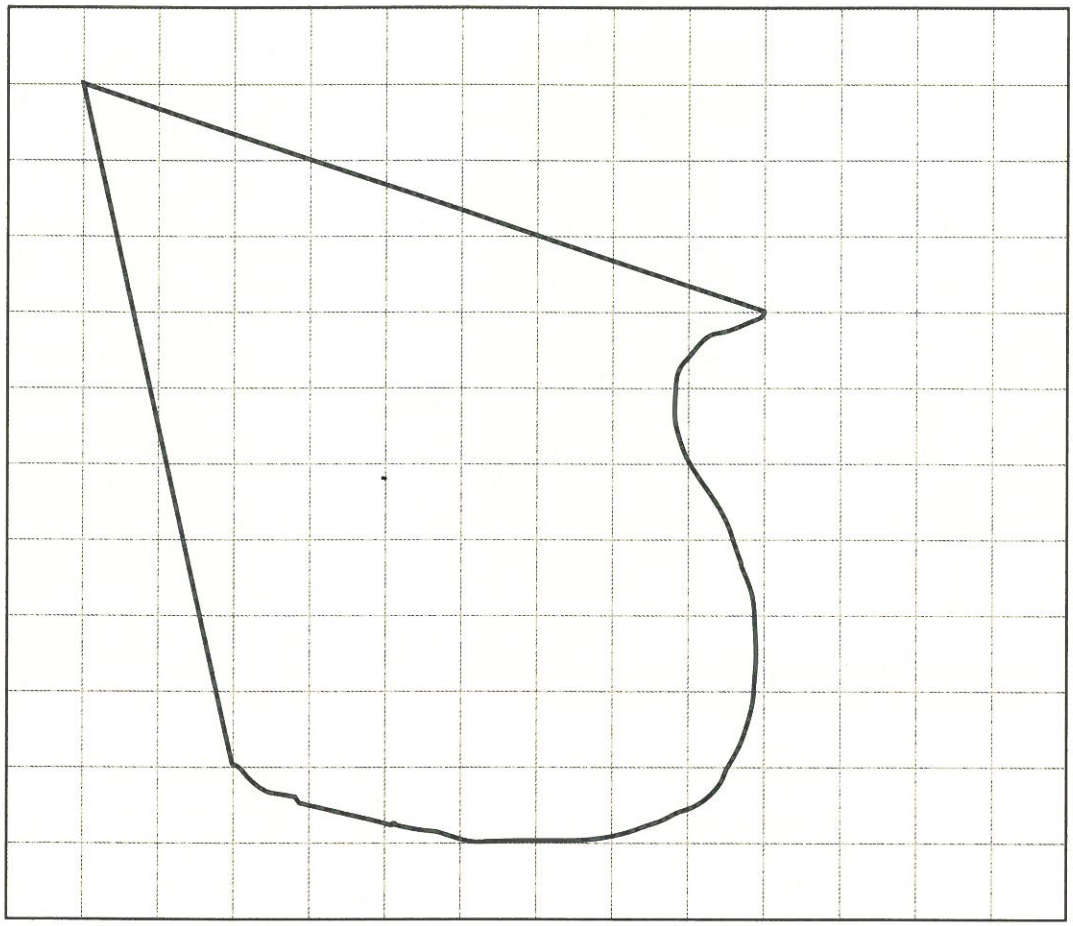
3. *(a)*



The above shape has been drawn on a centimetre squared grid.
Estimate the area of the above shape. [2]

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.....

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.....

Area of the shape = ... cm^2

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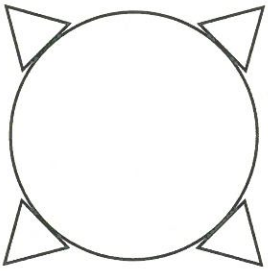
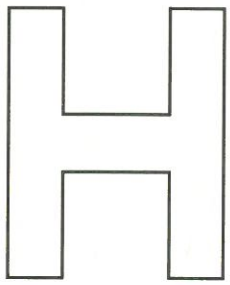
(b) Draw all the lines of symmetry on the following shapes. [2]

(i)



(ii)



(c) Write down the order of rotational symmetry of the two shapes in part *(b)*. [2]

(i) ..... (ii) .....

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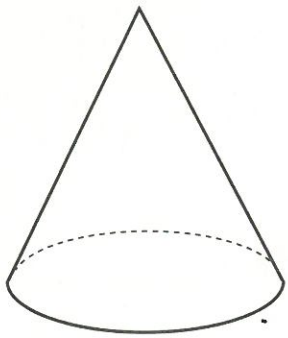
4. *(a)* Write down the special name of the shape shown in each of the following diagrams. [2]

(i)

.....

(ii)



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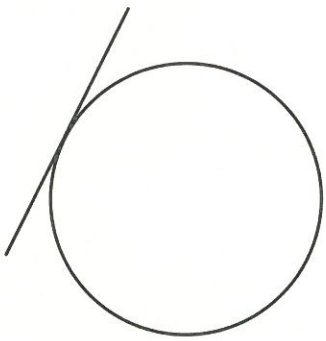
(b) Write down the special name of the straight line shown in each of the following diagrams. [2]

(i)



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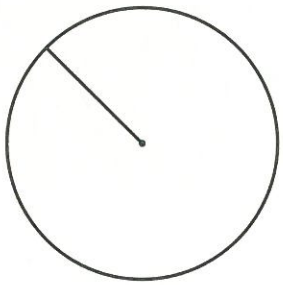
(ii)



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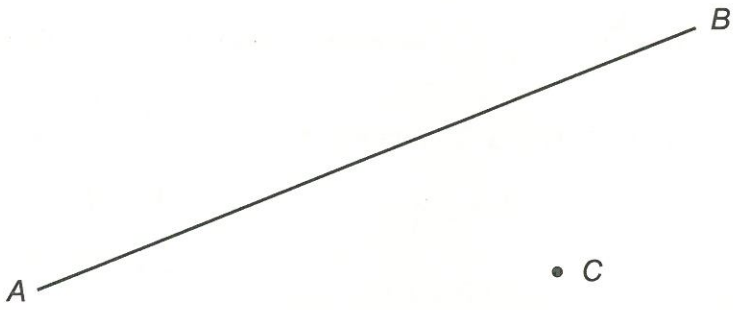
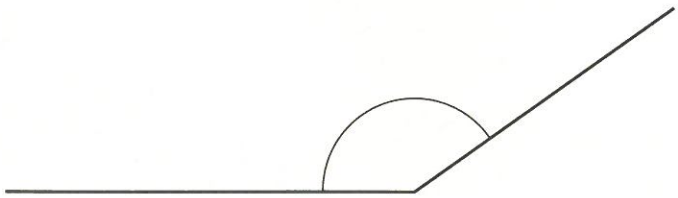
(c) Draw a line perpendicular to AB that passes through C. [1]



(d) Write down the special name for the angle shown below. [1]



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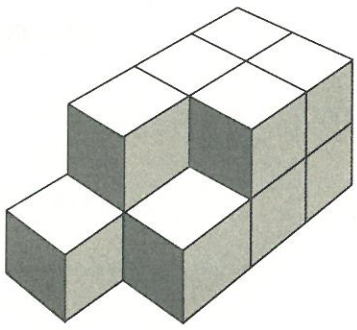
(e) The following solid shape is made up of cubes with sides of 1 cm.
What is the volume of the shape?
Give the units of your answer.
(There are no hidden gaps.) [2]



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Volume = ...

5. Choose the best word from those given below to describe the chance of each of the following events occurring.

impossible **unlikely** **an even chance** **likely** **certain**

(a) Choosing a day of the week with the letter 'b' in it. [1]

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(b) No rain falling in Wales during April next year. [1]

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(c) Getting an odd number score when a fair dice is rolled once. [1]

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Examiner only

6. The diagram shows the cross-section plan of underground caves in a mountain.
Taking the 'Entrance' level as 0, the 'Grand cave' is 50 m above the entrance level, or it is at height of +50 m.
The 'Chapel' is at a height of –20 m.

(a) Estimate the height of 'Junction'. [1]

.....

(b) Estimate the height of 'Grotto'. [1]

.....

(c) What is the difference in height

(i) between the 'Grand cave' and the 'Chapel'? [1]

.....

(ii) between the 'Junction' and the 'Grotto'? [1]

.....

Turn over.

Examiner only

7. The table shows the first class and second class postal charges for large and small letters.

	1st Class		2nd Class	
	Small Letters	Large letters	Small Letters	Large letters
0-100 g	60p	90p	50p	69p
101-250 g	_	£1.20	_	£1.10
251-500 g	_	£1.60	_	£1.40
501-750 g	_	£2.30	_	£1.90
Letters	Size (up to) Length: 24 cm, Width: 16·5 cm, Thickness: 0·5 cm Weight (up to) 100 g			
Large letters	Size (up to) Length: 35·3 cm, Width: 25 cm, Thickness: 2·5 cm Weight (up to) 750 g			

(a) Mark is going to post two large letters each weighing 230 g.
He buys two 1st class stamps.
How much does Mark pay altogether? [2]

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(b) Camille posts three large letters.
The weights of the letters are 75 g, 400 g and 650 g.
How much cheaper is it for her to use 2nd class stamps rather than 1st class stamps? [3]

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Examiner only

(c) Rebecca has a letter that weighs 550 g.
It has length 23 cm, width 18 cm and thickness 0·7 cm.
She only has two £1 coins.
Does Rebecca have enough money to post her letter?
You must show all your working and give a reason for your answer. [3]

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

Helen works in a shop.
Her normal working week is 35 hours.
She is paid £8.74 per hour.
When she works for more than 35 hours she is paid a higher amount for each extra hour she works.
Here is her time-sheet for one week when she was paid a total of £358.34.

Day	Monday	Tuesday	Wednesday	Thursday	Friday
Number of hours worked	8	7	9	8	7

Work out the amount she is paid for each extra hour.
You must show all your working. [8]

Examiner only

9. *(a)* Describe in words the rule for continuing the following sequences.

(i) 48 12 3 0·75 .... [1]

Rule: .....

.....

(ii) 3 9 27 81 .... [1]

Rule: .....

.....

(b) Write down the next 2 terms of the following sequence. [2]

25 24 21 16 9 ....

(c) Simplify $3a + 6a - a$. [1]

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(d) Jean rolls a dice many times.
She gets a score of 3 on 7 occasions and a score of 4 on n occasions.
Write down the **total score** of these threes and fours in terms of n. [2]

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Examiner only

10. Lazslo came on holiday to Wales from Italy.

(a) Lazslo changed 1550€ (euros) into pounds (£).
The rate of exchange was 1€ = £0.84.
How many pounds did he get? [2]

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(b) During his stay, Lazslo spent £798 on his accommodation.
Use the same exchange rate to convert this amount into euros. [2]

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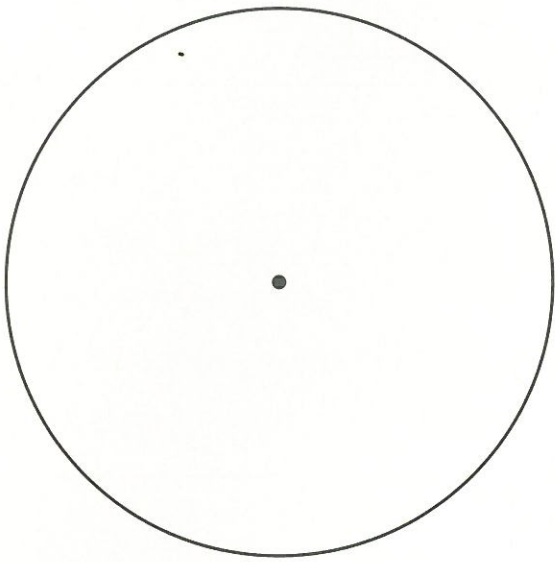
Examiner only

11. The type of mobile phone owned by each of 240 pupils was recorded. The results are summarised in the table below.

Type of mobile phone	Number of pupils
A	100
B	64
C	40
Other	36

Draw a pie chart to illustrate these results. You should show how you calculate the angles of your pie chart. [4]



12. Each girl in Year 8 chose her one favourite sport.

$\frac{1}{7}$ of the girls chose football.

$\frac{4}{7}$ of the girls chose volleyball.

The rest of the girls, 30 of them, chose hockey.
How many girls are there in Year 8? [4]

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13. Ms Owen received an electricity bill from Gower Electricity Company.
The bill, with some of the entries missing, is shown below.

Use the information given on the bill to complete all of the missing entries and calculate the total amount that Ms Owen has to pay. [5]

Gower Electricity Company

Bill period 1st July 2014 to 30th September 2014

Ms Owen
3 Sea View Road
Aber
AB31 9ZZ

INVOICE

Meter reading last time	Meter reading this time		Units used	Price of each unit in **pence**	Amount £
1514	2878	Units used	.....	13.3p	.....
		V.A.T. at 5%			.....
		Total charge including V.A.T.			.....
		Amount owing from previous bill			21.15
		Amount to pay			.....

Working:

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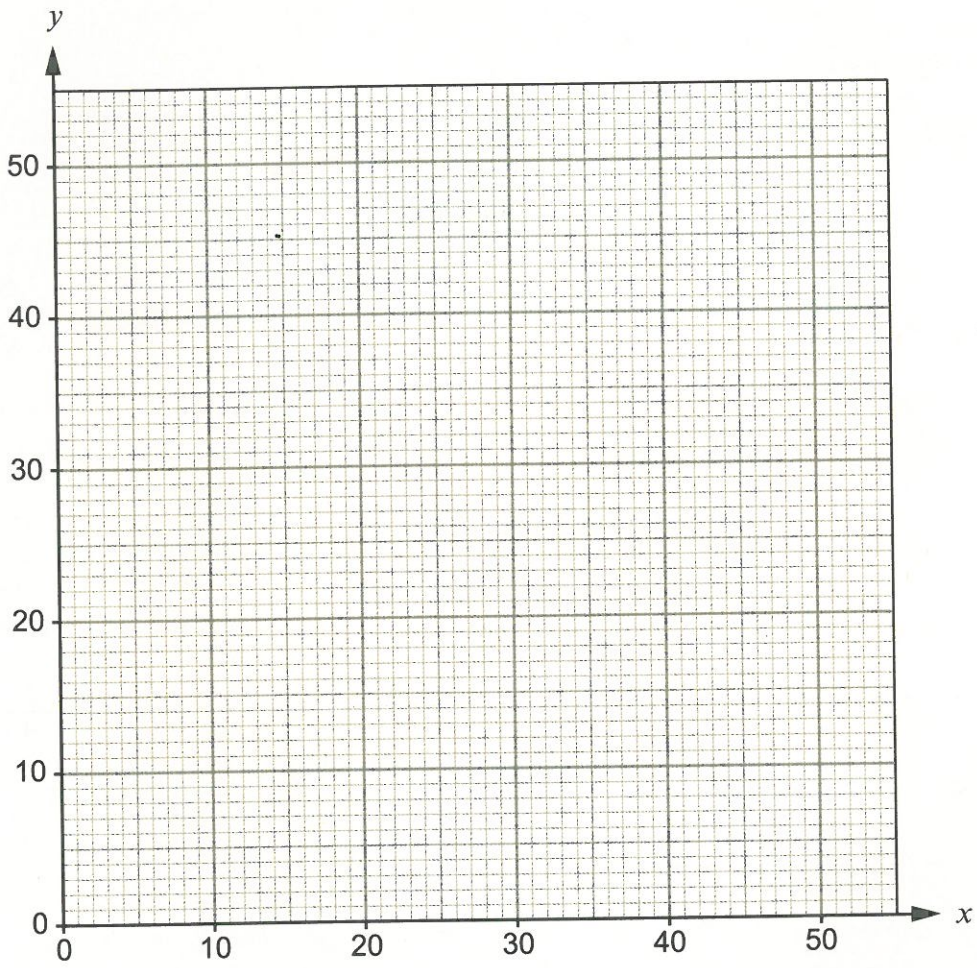
14. In an experiment, values of x and y are recorded to look for a possible relationship. The table below shows the results.

x	20	36	44	22	38	40	48	8
y	16	32	40	20	34	32	44	6

(a) On the grid below, draw a scatter diagram to show the results. [2]



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(b) The mean of the x values is 32.
Calculate the mean of the y values and then draw a line of best fit on your scatter diagram. [4]

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(c) What type of correlation does your scatter diagram show? [1]

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(d) Using your line of best fit, find an approximate value of y when x is 25. [1]

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15. *(a)* The length and width of rectangular television screens are often in the ratio 4 : 3. Calculate the length of the shorter side of such a television screen when the longer side is 36 inches long. [2]

(b) The 'size' of a television-screen, given in inches, is the length of the diagonal, as shown in the diagram below.

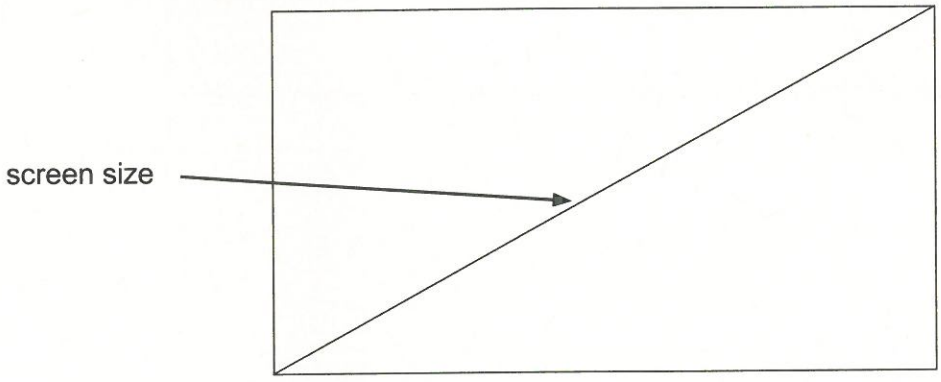

Diagram not drawn to scale

Calculate the screen size of the television described in part *(a)*. [3]

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16. The diagram shows 4 identical large square tiles and 6 identical small square tiles.

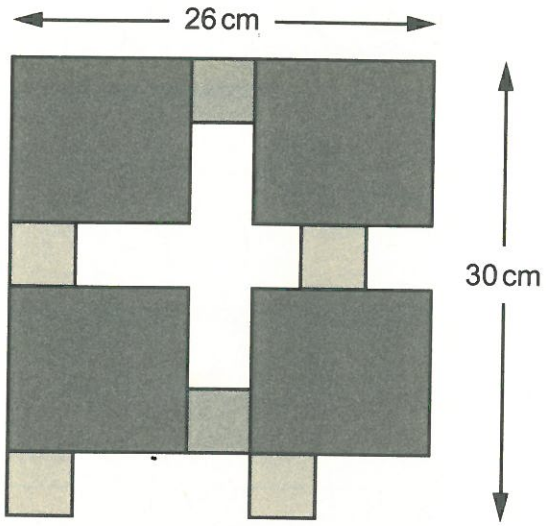

Diagram not drawn to scale

Find the length of one of the large square tiles.
You must show all your working. [3]

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17.

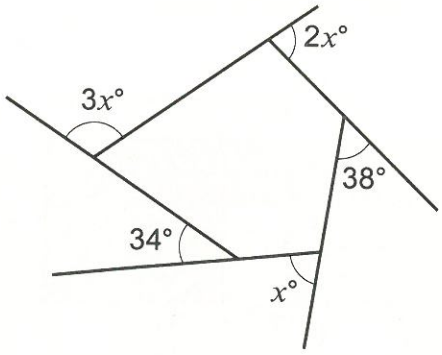

Diagram not drawn to scale

Calculate the value of x. [4]

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18. *(a)* Factorise $6x - 8$.

[1]

.....

(b) The nth term of a sequence is $3n^2 - 25$.
Evaluate the 40th term of the sequence.

[2]

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.....

(c) Write down the nth term of the following sequence.

[2]

7, 19, 31, 43, 55, 67, ...

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.....

.....

Examiner only

19. A solution to the equation $x^3 - x - 10 = 0$ lies between 2 and 3.
Use a trial and improvement method to find this solution correct to 1 decimal place. [4]

END OF PAPER