

Surname	Centre Number	Candidate Number
Other Names		0



## GCSE LINKED PAIR PILOT

4363/01



S15-4363-01

### METHODS IN MATHEMATICS UNIT 1: Methods (Non-Calculator) FOUNDATION TIER

A.M. THURSDAY, 21 May 2015

1 hour 30 minutes

**CALCULATORS ARE  
NOT TO BE USED  
FOR THIS PAPER**

For Examiner's use only		
Question	Maximum Mark	Mark Awarded
1.	10	
2.	3	
3.	4	
4.	7	
5.	5	
6.	8	
7.	5	
8.	4	
9.	3	
10.	11	
11.	6	
12.	4	
13.	5	
14.	5	
<b>Total</b>	<b>80</b>	

#### INSTRUCTIONS TO CANDIDATES

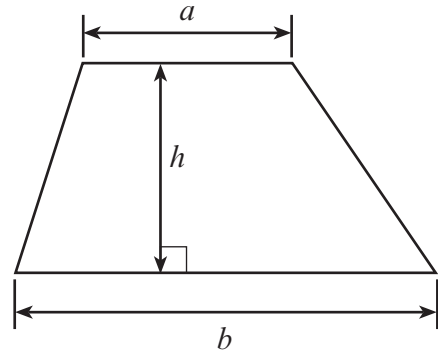
Use black ink or black ball-point pen.  
Write your name, centre number and candidate number in the spaces at the top of this page.  
Answer **all** the questions in the spaces provided.  
Take  $\pi$  as 3.14.

#### INFORMATION FOR CANDIDATES

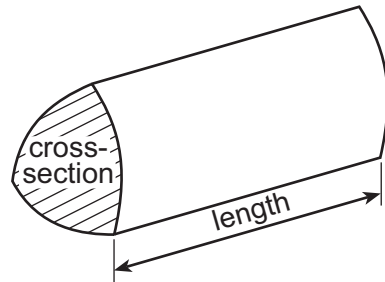
You should give details of your method of solution when appropriate.  
Unless stated, diagrams are not drawn to scale.  
Scale drawing solutions will not be acceptable where you are asked to calculate.  
The number of marks is given in brackets at the end of each question or part-question.  
You are reminded that assessment will take into account the quality of written communication (including mathematical communication) used in your answer to question **6**.

**Formula List**

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



**Volume of prism** = area of cross-section  $\times$  length



1. (a) (i) Write down, in figures, the number fifty thousand and fourteen. [1]

.....

- (ii) Write down, in words, the number 630 000. [1]

.....

(b)

**22                  26                  27                  32                  36                  37**

**42                  46                  47                  52                  54**

Using only the numbers above, write down

- (i) the sum of 19 and 27, [1]

.....

- (ii) the difference between 100 and 74, [1]

.....

- (iii) the answer when 6 is multiplied by 7, [1]

.....

- (iv) the answer when 94 is divided by 2, [1]

.....

- (v) a factor of 72, [1]

.....

- (vi) a multiple of 8. [1]

.....

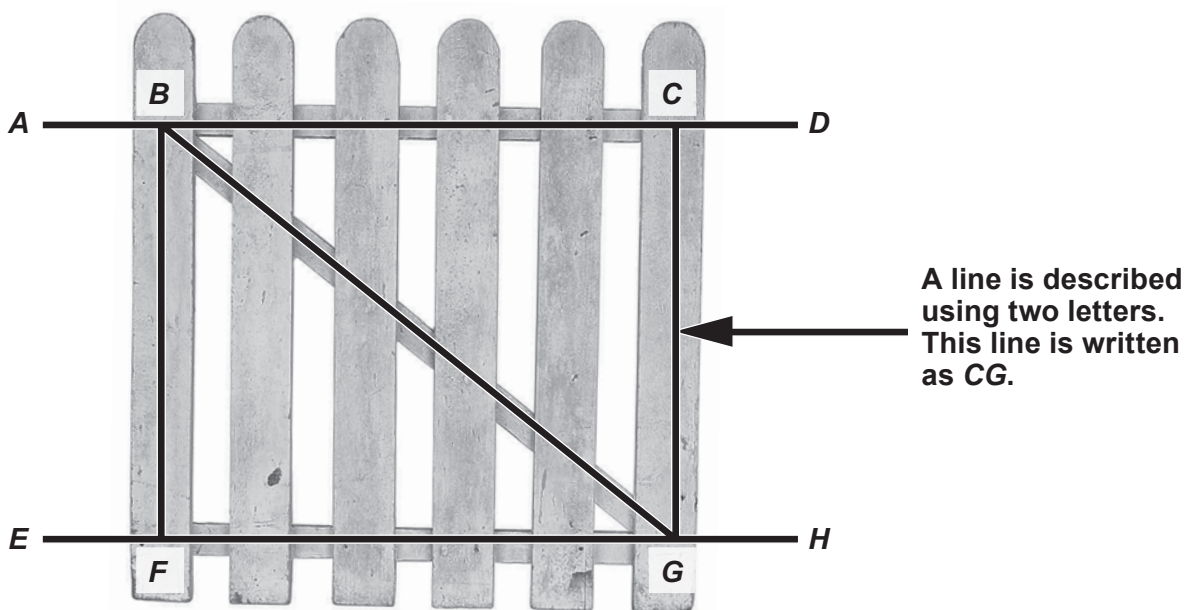
- (c) (i) Write 314 correct to the nearest 10. [1]

.....

- (ii) Write 2611 correct to the nearest 1000. [1]

.....

2.



- (a) Use a pair of letters, as above, to describe a line which is **horizontal**. [1]

The line ..... is horizontal.

- (b) Use a pair of letters, as above, to describe two lines which are **parallel** to each other. [1]

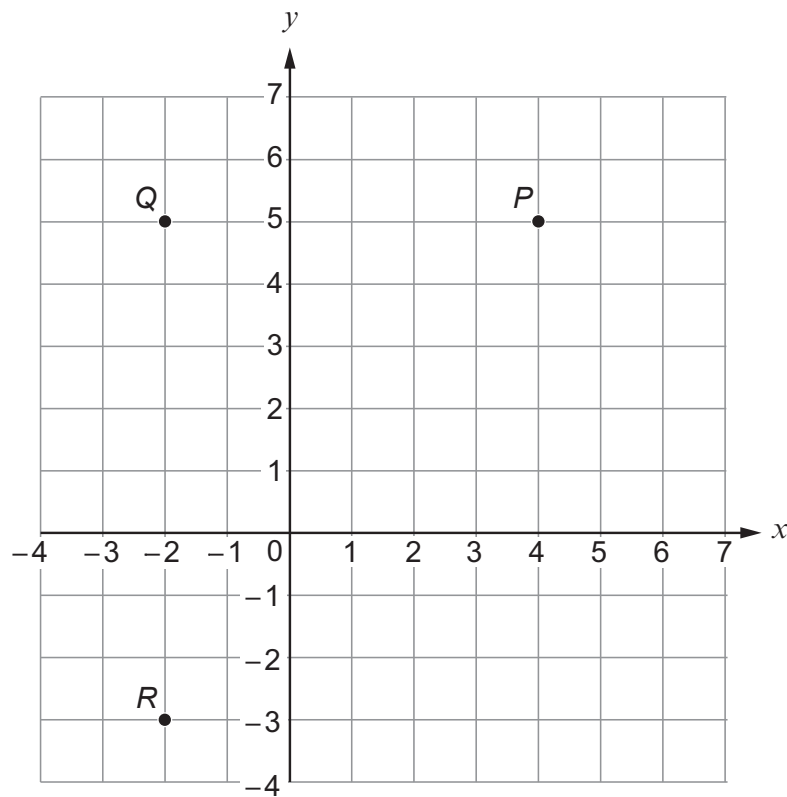
The line ..... is parallel to the line .....

- (c) Use a pair of letters, as above, to describe two lines which are **perpendicular** to each other. [1]

The line ..... is perpendicular to the line .....

3. (a) Write down the coordinates of the points  $P$ ,  $Q$  and  $R$  shown in the grid below.

[3]



The coordinates of  $P$  are (....., .....

The coordinates of  $Q$  are (....., .....

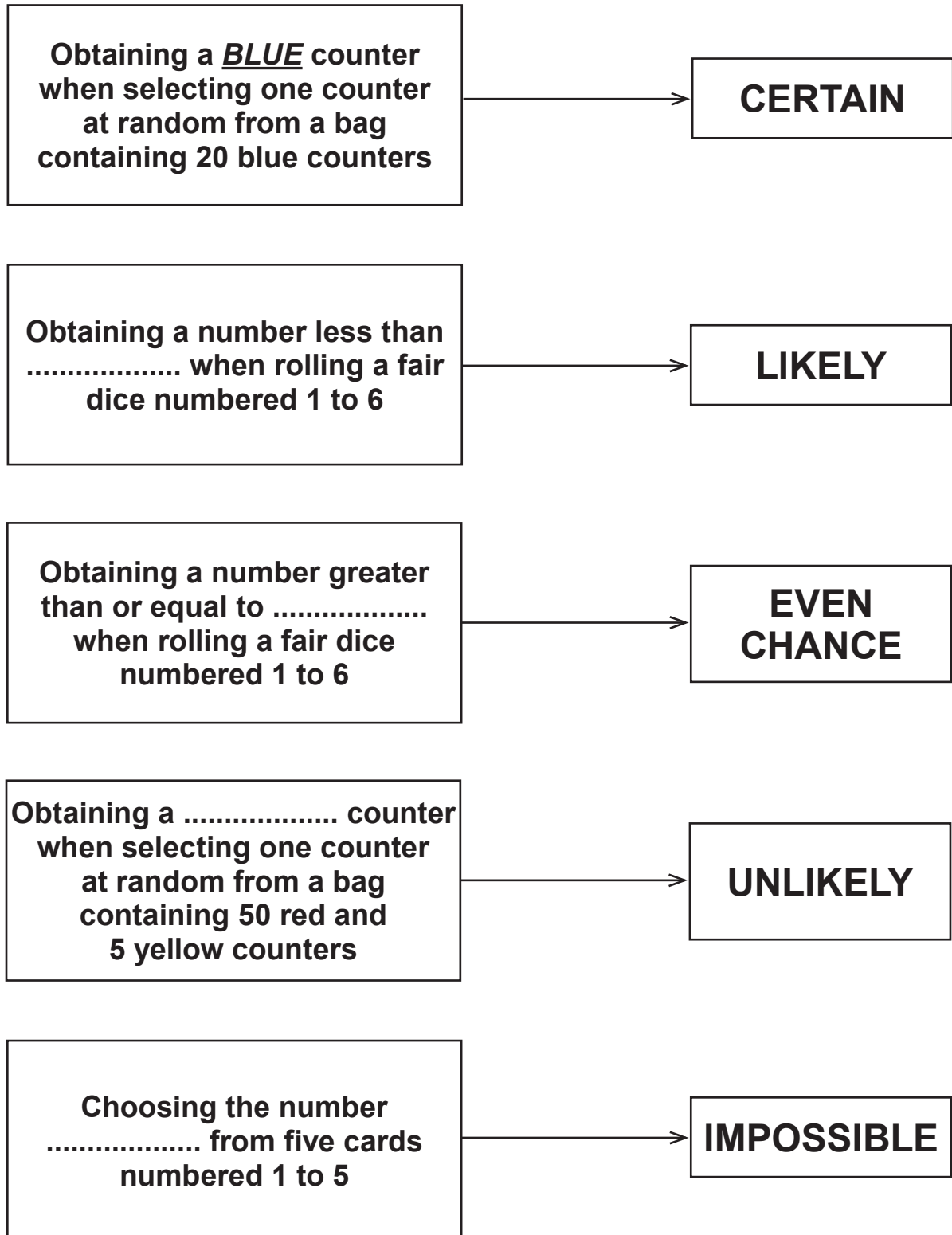
The coordinates of  $R$  are (....., .....

- (b)  $P$ ,  $Q$ ,  $R$  and  $S$  are the vertices of a rectangle.  
Plot the 4th vertex of the rectangle on the grid above and label it as the point  $S$ .

[1]

4. (a) Fill in the blanks to match each event to its chance of happening.  
The first one is done for you.

[4]



- (b) There are 50 members in a tennis club.  
Some of these members have visited the Wimbledon Championship and some have not.  
This information is displayed in the following table.

	Male	Female	Total
Visited Wimbledon Championship	24	5	29
Have not visited Wimbledon Championship	6	15	21
<b>Total</b>	<b>30</b>	<b>20</b>	<b>50</b>

What is the probability that a member chosen at random

- (i) is male? [1]

.....

- (ii) has visited the Wimbledon Championship? [1]

.....

- (iii) is a female who has not visited the Wimbledon Championship? [1]

.....

5. Write down the answer to each calculation in the space provided.  
Match the calculations that have the same answer.  
One has been done for you.

[5]

$$28 \div (4 + 3)$$

$$= \dots\dots\dots$$

$$-3 - 2$$

$$= \dots\dots\dots$$

$$25 - 6 \times 5$$

$$= \dots\dots\dots$$

$$30 + 18 \div 3$$

$$= 36$$

$$6^2$$

$$= 36$$

$$0.4 \times 5$$

$$= \dots\dots\dots$$

$$21 - 4 \times 3$$

$$= \dots\dots\dots$$

$$2^2$$

$$= \dots\dots\dots$$

$$-7 + 9$$

$$= \dots\dots\dots$$

$$\sqrt{81}$$

$$= \dots\dots\dots$$



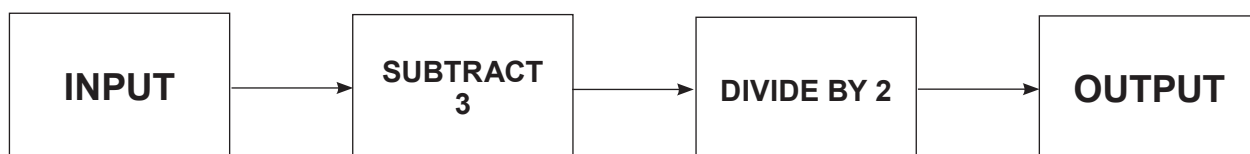


7. (a) Write down the next term in the following sequence and describe the rule for continuing the sequence. [2]

5, 11, 17, 23, .....

Rule: .....

- (b) The diagram below shows a number machine.



Using the number machine, calculate

- (i) the **OUTPUT** when the **INPUT** is 7 [1]

.....

- (ii) the **OUTPUT** when the **INPUT** is  $-5$  [1]

.....

- (iii) the **INPUT** when the **OUTPUT** is 10. [1]

.....

8. (a) Evaluate  $\frac{5}{10} + \frac{8}{10}$ .  
Write your answer as a mixed number. [2]

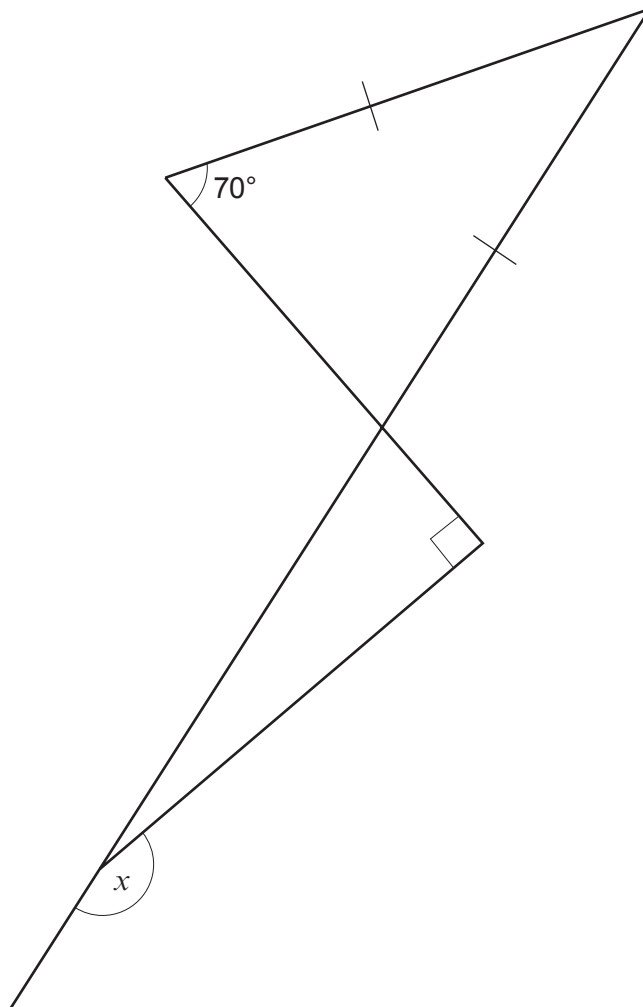
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- (b) Write 15 seconds as a fraction of 1 minute in its simplest form. [2]

.....

.....

9.



*Diagram not drawn to scale*

Find the size of angle  $x$ .

[3]

.....

.....

.....

.....

.....

10. (a) Simplify  $5p + 3q + 10r - 8q$ .

[2]

.....

(b) Expand  $x(x^2 + 7)$ .

[2]

.....

(c) Factorise  $3x^2 + 27x$ .

[2]

.....

(d)                    **equation**                    **inequality**                    **formula**                    **expression**

Use one of the special names above to describe the following

[2]

(i)  $10x + 5 < 35$  .....

(ii)  $9y + 1 = 19$ . .....

(e) Use the following clues to find the missing number.

- The number is between 300 and 400.
- It is a multiple of 30 and 45.

[3]

.....

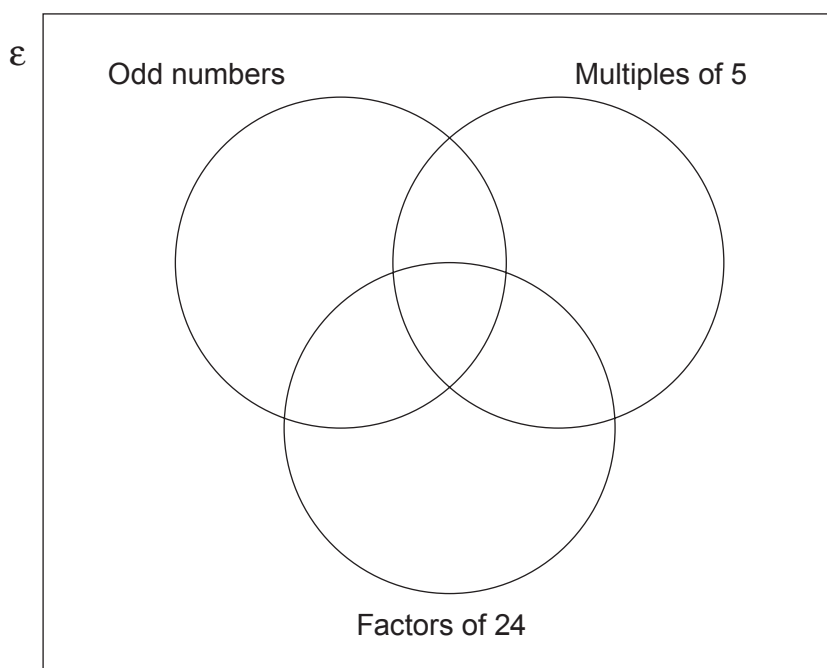
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Missing Number is .....

11. (a) Place the whole numbers 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10 in the correct positions in the Venn diagram. [3]



- (b) A whole number is selected at random from the set {1, 2, 3, 4, 5, 6, 7, 8, 9, 10}.

Find the probability that the number selected is:

an odd number .....

an odd number that is a factor of 24 .....

not a multiple of 5 and not a factor of 24. ....

[3]

12. A spinner shows 5 colours.  
The spinner was spun 50 times.  
Some of the outcomes were recorded in a table.

Colour	Purple	Black	White	Red	Yellow
Number of times	7	8	20	.....	.....

- (a) Red occurred twice as many times as yellow.  
Complete the table above.

[1]

.....

.....

.....

.....

- (b) Write down the best estimate for the following probabilities on a single spin.  
You must express each of your answers as a **decimal**.

- (i) The probability of obtaining black.

[1]

.....

.....

- (ii) The probability of **not** obtaining white.

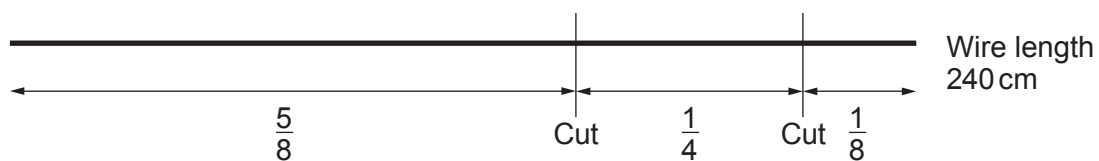
[2]

.....

.....

.....

13. (a) A length of wire measuring 240 cm is to be cut into 3 pieces as shown in the diagram.



Calculate the length of each of the 3 pieces of wire.

[2]

.....

.....

.....

.....

.....

.....

.....

.....

- (b) A different piece of wire of length 308 cm is cut in the ratio 2 : 4 : 5.  
Calculate the length of each of the 3 pieces of wire.

[3]

.....

.....

.....

.....

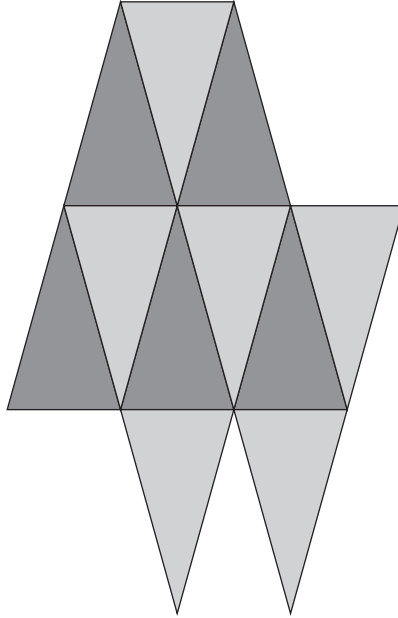
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14. (a) The diagram below shows dark and light triangular tiles. The tiles are all identical isosceles triangles.



*Diagram not drawn to scale*

Explain why the tiles tessellate.

You must give a reason, based on angle facts, for your answer.

[2]

.....

.....

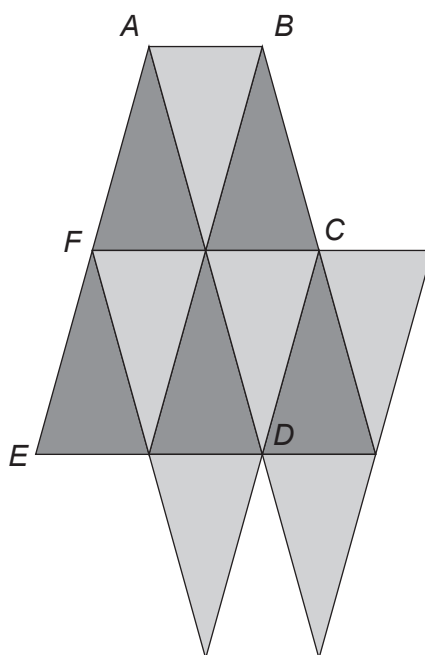
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- (b) Labels have been inserted on the diagram showing the tiles.



*Diagram not drawn to scale*

The smallest angle in each of the isosceles triangular tiles is  $26^\circ$ .  
Use angle facts to show that  $AB$  is parallel to  $FC$ .  
You must show your calculations.

[3]

.....

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.....

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.....

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