

Surname	Centre Number	Candidate Number
Other Names		0



**GCSE**

4370/04

**MATHEMATICS – LINEAR  
PAPER 2  
FOUNDATION TIER**

A.M. MONDAY, 11 November 2013

1 hour 45 minutes

**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  $\pi$  as 3.14 or use the  $\pi$  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.

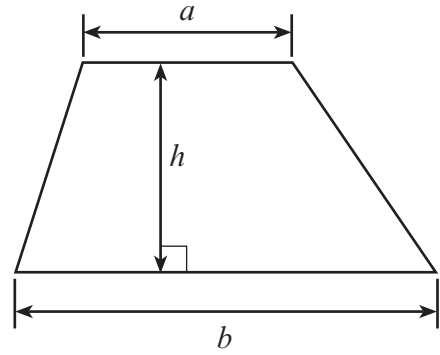
The number of marks is given in brackets at the end of each question or part-question.

You are reminded that assessment will take into account the quality of written communication (including mathematical communication) used in your answer to question 6(c).

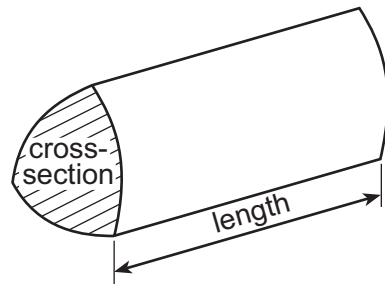
For Examiner's use only		
Question	Maximum Mark	Mark Awarded
1.	6	
2.	4	
3.	4	
4.	4	
5.	4	
6.	9	
7.	5	
8.	6	
9.	6	
10.	4	
11.	6	
12.	4	
13.	7	
14.	5	
15.	4	
16.	8	
17.	7	
18.	7	
<b>Total</b>	<b>100</b>	

## Formula List

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



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



1. (a) Sam's parents buy him some clothes ready for the start of the school term. Complete the following table to show their bill for these items. [4]

Item	Cost (£)
4 pairs of trousers @ £14.99 a pair	59.96
10 pairs of socks @ £3.27 a pair	
6 shirts @ £18.46 FOR TWO	
2 pairs of shoes @ £32.68 a pair	
Total	

- (b) They get a 5% discount.  
How much is this discount? [2]

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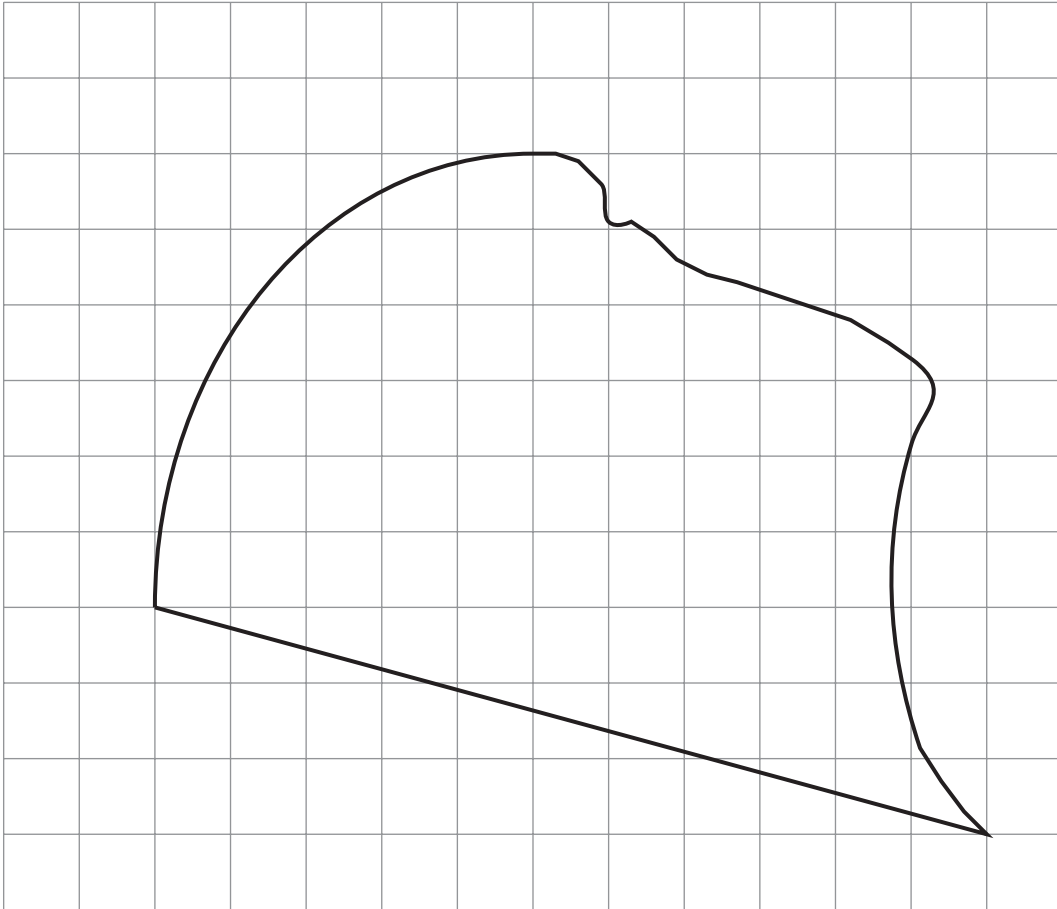
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2. **Circle** the quantity that is the appropriate estimate for each of the following. [4]

Distance from London to Coventry	160 mm	160 cm	160 m	160 km
Weight of a large dog	35 kg	350 kg	35 mg	35 g
Capacity of a small jug	35 litres	350 litres	350 ml	35 mm <sup>3</sup>
Height of a door	1900 cm	190 cm	19 cm	190 mm

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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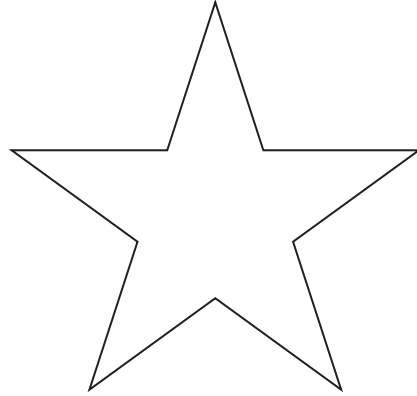
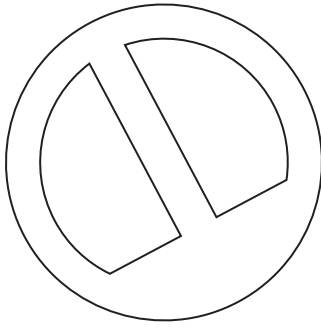
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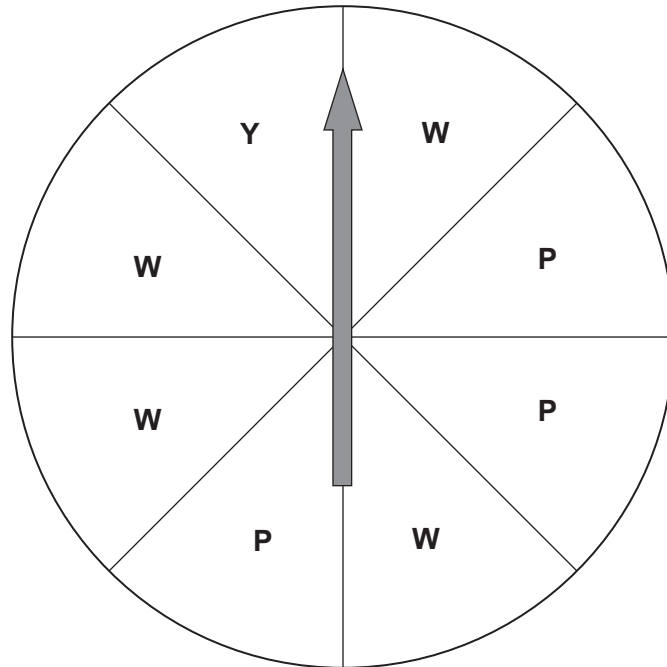
Area of the shape = ..... cm<sup>2</sup>

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

[2] Examiner  
only



4. (a) Charlotte has a spinner with 8 identical sections, except for their colour. Some are coloured white (W), some are pink (P) and one is coloured yellow (Y), as shown below.



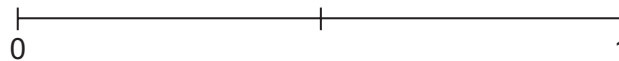
The arrow is spun and it stops at random on a coloured section.  
On the probability scale shown below, mark the points **A**, **B** and **C** where

**A** is the probability that the arrow stops on white,

**B** is the probability that the arrow does NOT stop on yellow,

**C** is the probability that the arrow stops on red.

[3]



- (b) Circle the best expression from those given below to describe the chance of the event **B** occurring. [1]

impossible

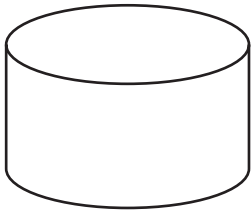
unlikely

an even chance

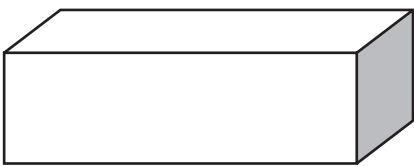
likely

certain

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

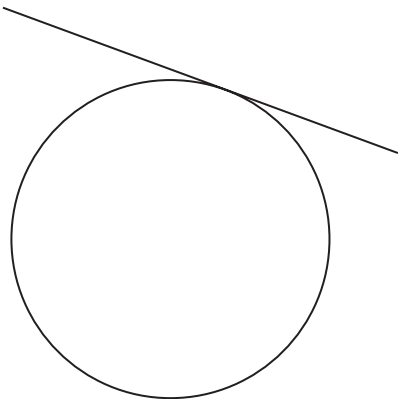


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(b) Write down the special name given to the straight line in the following diagram. [1]



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



6. The following table gives the postal charges for sending letters, small packets and printed papers over 100g to various parts of the world.

**Letters, Small Packets and Printed Papers over 100g**

Weight up to and including	UK & Europe	World Zone 1	World Zone 2
150g	£2.93	£3.86	£3.90
200g	£3.16	£4.42	£4.50
250g	£3.39	£4.98	£5.10
300g	£3.62	£5.54	£5.70
400g	£4.22	£6.76	£6.98
500g	£4.82	£7.98	£8.26
600g	£5.42	£9.20	£9.54
700g	£6.02	£10.42	£10.82
800g	£6.62	£11.64	£12.10
900g	£7.22	£12.86	£13.38
1000g	£7.82	£14.08	£14.66
2000g	£13.82	£26.28	£27.46
For each additional 100g, or part thereof, add			
	60p	£1.22	£1.28

<b>World Zone 1</b>
USA
South America
Canada
Africa
Far East
<b>World Zone 2</b>
Australia
New Zealand

- (a) What is the cost of sending a letter weighing 200g to Europe? [1]

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- (b) What is the cost of sending a package weighing 585g to Canada? [1]

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(c) *You will be assessed on the quality of your written communication in this part of the question.*

Gethin sends a package weighing 2460g to New Zealand.  
How much change should he get from £40?  
You must show all your working.

[7]

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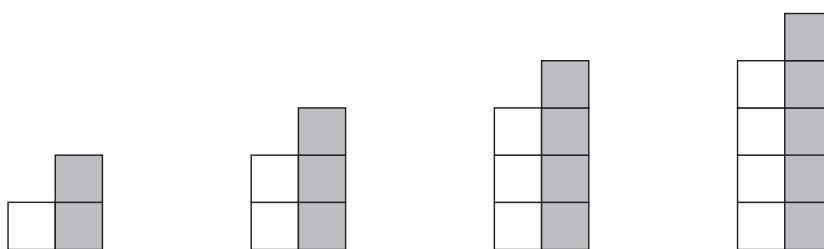
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7. The following patterns have been made using shaded and unshaded squares.



Pattern

1

2

3

4

- (a) How many shaded squares will there be in pattern 100?

[1]

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- (b) How many squares will there be in pattern 60 altogether?

[2]

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- (c) Which pattern will have 81 squares altogether?

[2]

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

(i) 4, 16, 28, 40, 52, ..... [1]

Rule: .....

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(ii) 3, -9, 27, -81, 243, ..... [1]

Rule: .....

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(b) Use the formula  $F = 6G + 10H$  to find the value of  $F$  when  $G = 12$  and  $H = 3$ . [2]

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(c) A magazine costs  $m$  pence. Write down, in terms of  $m$ , the cost of 8 magazines

(i) in pence, [1]

Cost = ..... pence

(ii) in pounds (£). [1]

Cost = £ .....

9. The marks obtained by Colin in eight subjects were as follows.

66    45    59    55    65    69    45    72

(a) Find the mean of these eight marks.

[3]

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(b) Find the range of the marks.

[1]

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(c) Find the median mark.

[2]

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10. An express coach travelled from Bristol to Swansea. It stopped at a motorway services on the way. The travel graph below represents its journey from leaving Bristol up to the time it left the motorway services.

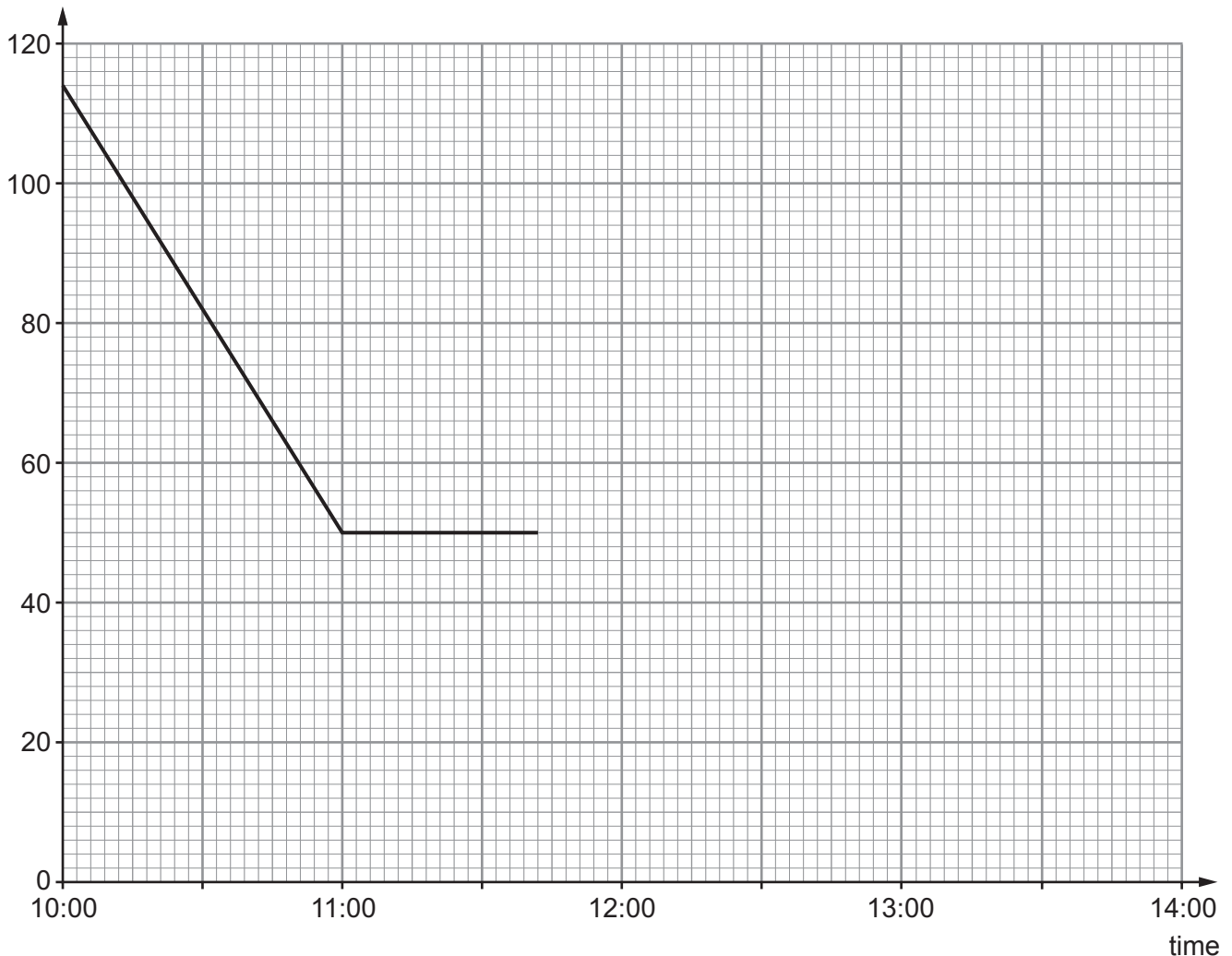
(a) How far from Swansea was the coach when it started out? [1]

(b) How far did the coach travel in the first hour? [1]

(c) For how many minutes did the coach stop at the motorway services? [1]

(d) After stopping at the motorway services, the coach was driven at a steady speed reaching Swansea at 13:39. Draw the graph for this part of its journey. [1]

Distance from Swansea  
(in miles)



11. (a) What percentage is £95 of £250?

[2]

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- (b) Berwyn wants to hire a car. He sees the following advertisement.

## Cars for hire

£35.60 in total for the first 2 days,  
then £16 per day

He hires a car and his bill comes to £163.60.  
For how many days did he hire the car?

[4]

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12. Faizal has £400.

He spends  $\frac{1}{4}$  of it on rent and  $\frac{2}{5}$  of it on food.

What fraction does he have left?  
Write your answer in its simplest terms.

[4]

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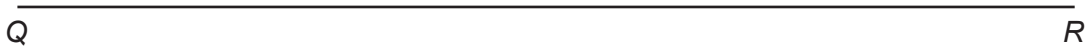
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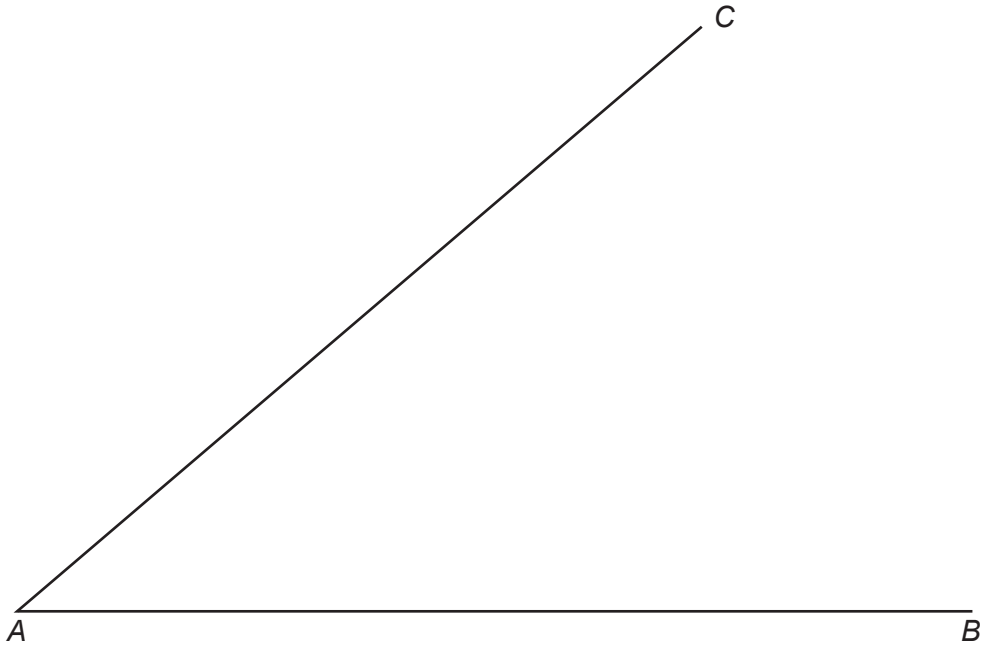
13. (a) Complete an accurate drawing of triangle  $PQR$  in which  $QR = 14$  cm,  $\hat{PQR} = 48^\circ$  and  $\hat{PRQ} = 67^\circ$ .  
The side  $QR$  has been drawn for you. [3]

Examiner  
only



- (b) Using a ruler and a pair of compasses, construct the bisector of angle  $BAC$ .

[2]

Examiner  
only

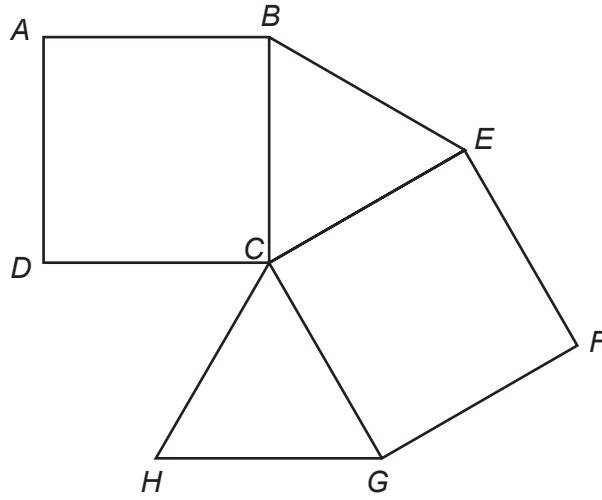
- (c) Using a ruler and a pair of compasses, construct an angle of  $60^\circ$  at the point  $A$ .

[2]



14. The diagram shows 2 identical squares and 2 identical equilateral triangles. Explain fully how another equilateral triangle will fit exactly into the gap  $DCH$ .

[5]



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15. Agatha and Bryn each bought some pens.  
Each pen Agatha bought cost £2.20.  
Each pen Bryn bought cost £1.40.  
Altogether, the cost of the pens was £13.  
How many pens did they buy altogether?

[4]

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16. (a) In Newterry, the mean daily rainfall for the first week in April was 3.8 cm. Comparing this first week with the following week, it rained:

- 1 cm more on Sunday, Monday and Tuesday of the second week than on these days during the first week,
- 1 cm less on Wednesday, Thursday and Friday of the second week than on these days during the first week,
- the same amount on the Saturday of the second week as on the Saturday of the first week.

What was the mean daily rainfall in the second week?  
Give a reason for your answer.

[2]

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- (b) In Summerfield, the rainfall for each of 30 days was measured. The results are summarised in the table below.

Daily rainfall, $r$ , in cm	Number of days
$0.5 \leq r < 1.5$	5
$1.5 \leq r < 2.5$	11
$2.5 \leq r < 3.5$	13
$3.5 \leq r < 4.5$	1

- (i) Calculate an estimate for the mean daily rainfall for the 30 days. [4]

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- (ii) State the modal class. [1]

Modal class .....

- (iii) Write down the class in which the median lies. [1]

Median class .....

17. (a) An internet company, offering money exchange, displays a conversion exchange table as shown below.

		Exchange from				
		US dollars 1\$	GB pounds £1	Canadian dollars 1\$	euros 1€	Australian dollars 1\$
Exchange to	US dollars	1	1.59003	0.967202	1.4304	0.916279
	GB pounds	0.628915	1	0.608287	0.8996	0.576261
	Canadian dollars	1.03391	1.64395	1	1.4789	0.94735
	euros	0.699105	1.1116	0.676175	1	0.640575
	Australian dollars	1.09137	1.73532	1.05557	1.56109	1

The method of using this table of exchanges is as follows:

To exchange GB pounds to euros, read down the table, £1 is 1.1116 euros.

Using the exchange rates from the table, calculate the following.

- (i) Exchange 200 US dollars to Australian dollars. [2]

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- (ii) How many Canadian dollars were exchanged to give 250 euros? [2]

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(b) Fill in the **two** gaps, indicated with dotted lines, in the following conversion exchange table. [3]

		Exchange from		
		Hong Kong dollar 1\$	Japanese yen 1 yen	euro 1€
Exchange to	Hong Kong dollar	1		.....
	Japanese yen		1	133.5
	euro	0.090147	.....	1

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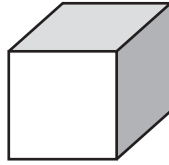
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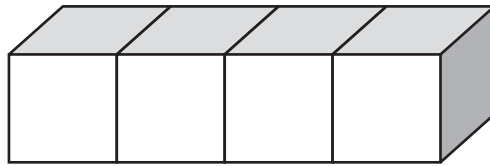
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18. The total surface area of one cube is  $54 \text{ cm}^2$ .



Four of these cubes are joined together to make a cuboid as shown in the diagram below.



- (a) Calculate the total surface area of the cuboid shown in the diagram.

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(b) Calculate the volume of the cuboid shown in the diagram.

[3]

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