wjec cbac

GCSE

4370/04

A15-4370-04

MATHEMATICS – LINEAR
PAPER 2
FOUNDATION TIER

A.M. TUESDAY, 10 November 2015

1 hour 45 minutes

Suitable for Modified Language Candidates

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

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.

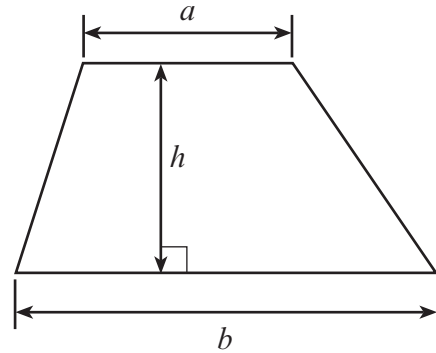The number of marks is given in brackets at the end of each question or part-question.

You are reminded that assessment will take into account the quality of written communication (including mathematical communication) used in your answer to question **5**.

CJ*(A15-4370-04 ML)

4370
040001

Formula List

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

Volume of prism = area of cross-section × length
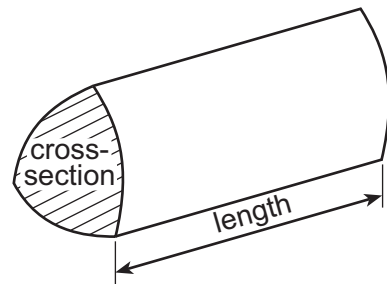
1. *(a)* Toby buys the following items to decorate some rooms in his house. Complete his bill. [4]

Item	Cost
10 rolls of wallpaper at £14.82 each	£ 148.20
4 cartons of wallpaper paste at £7.53 per carton	£
6 tins of emulsion paint at £8.32 each	£
4 tins of gloss paint at £14.54 each	£
Total	£

(b) Toby gets a 5% discount on his bill.
How much does he pay? [3]

....

....

....

....

(c) Toby goes to a cafe and buys a cup of tea, a sandwich and a cake.
How much change does he get from £6? [3]

Cafe	
Tea	£1.56
Coffee	£2.35
Sandwich	£2.86
Cake	98p

....

....

....

....

....

....

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

Height of a door	2 m	20 m	2 mm	2 cm
Weight of a baby	3 g	3 mg	30 kg	3 kg
Volume of tea in a full mug	3 litres	30 cm^3	300 ml	30 ml
Area of a bedroom floor	12 m^2	12 cm^2	12 mm^2	12 cm^3

(b) In the space below:

Draw a circle of radius 6 cm.
Draw a diameter of your circle. [2]

3. Draw a line connecting each of the following words to the correct shape.
The first one has been done for you. [4]

Cuboid
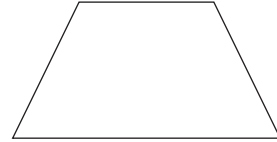
Isosceles triangle
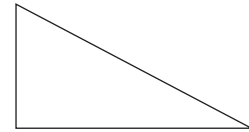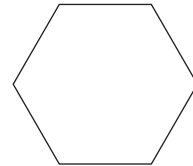
Parallelogram
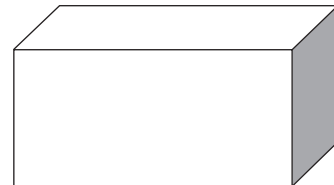
Pentagon
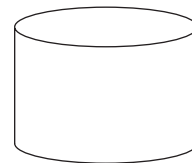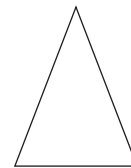
Cylinder
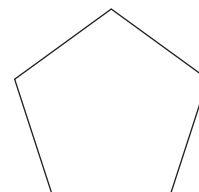
4. *(a)*
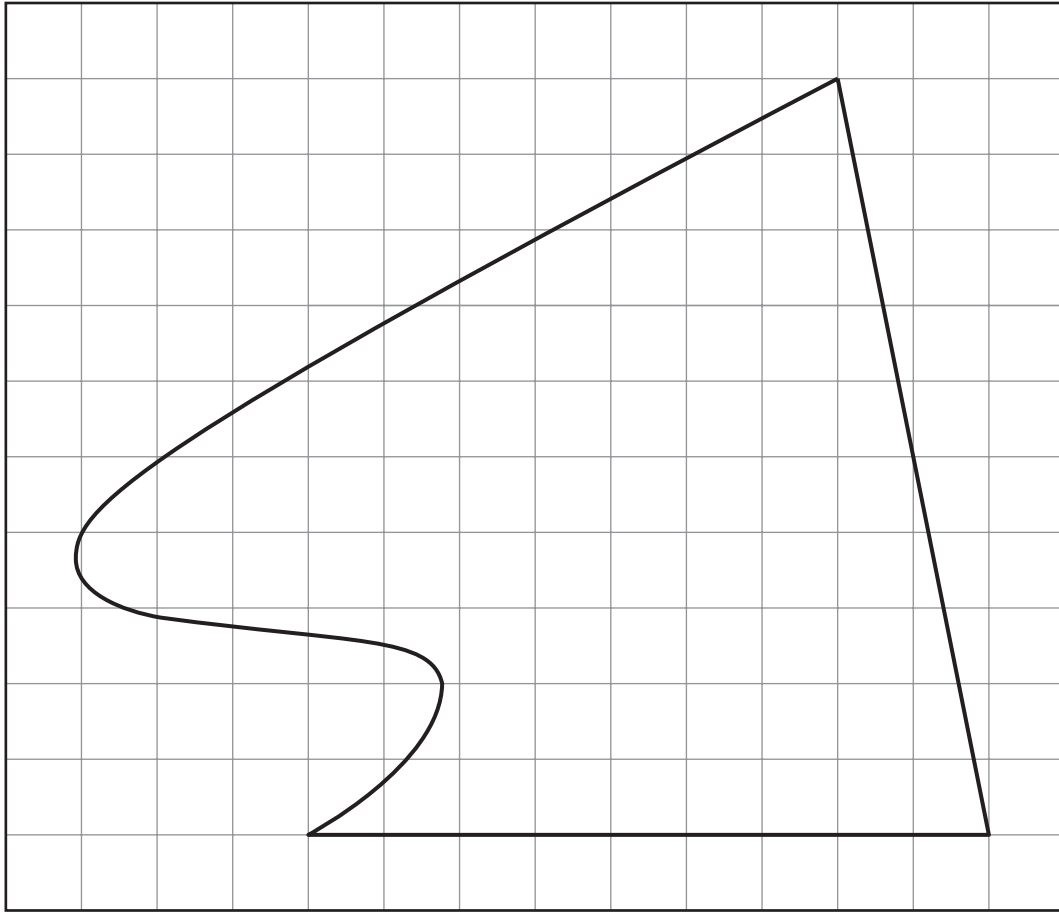
The above shape is the outline of a sheet of cardboard.
It is drawn on a square grid where each square represents $5\,cm^2$.
Estimate the area of the surface of the sheet of cardboard. [3]

....

....

....

....

Area of the surface of the sheet of cardboard = ... cm^2

(b) Complete the following figure so that it is symmetrical about the line *AB*. [2]

A

B

4370
040007
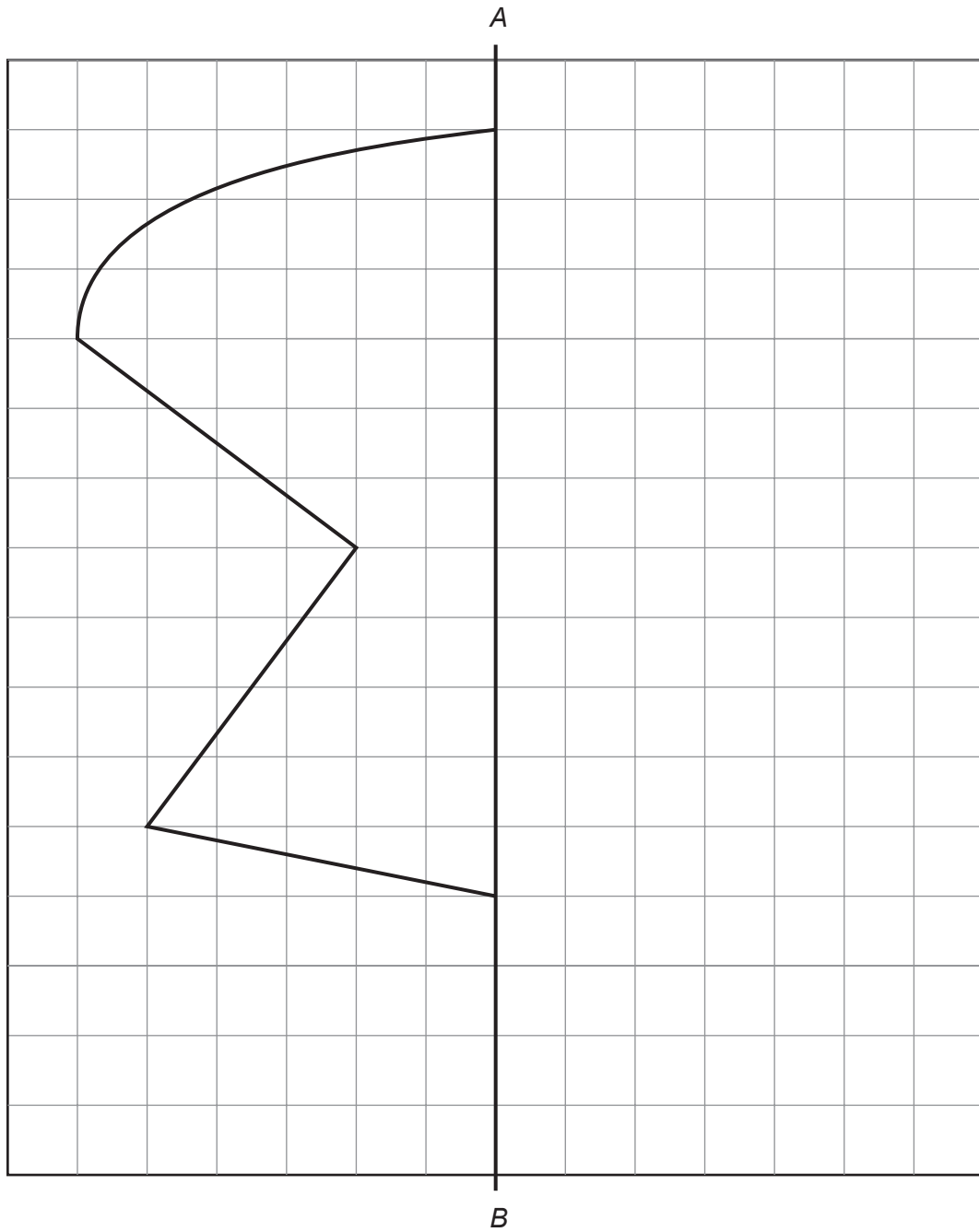
5. *You will be assessed on the quality of your written communication in this question.*

Peter has these nine coins.

He spends £1.78 in a shop.
Peter pays using some of his coins and he is given change.
Including his change, he has exactly four coins left.

List the coins he used to pay and list the coins he had left. [6]

....

....

....

....

....

....

....

....

Coins he used to pay ....

Coins he had left ....

6. The lengths, in cm, of 8 pieces of wood are:

56   45   110   77   87   61   74   36

(a) Find the median of their lengths. [2]

....

....

....

....

....

(b) Find the mean of their lengths. [3]

....

....

....

....

(c) Find the range of their lengths. [1]

....

....

....

....

(4370-04)   **Turn over.**

Examiner
only

7. *(a)* Describe **in words** the rule for continuing each of the following sequences.

(i)   98   86   74   62   50   .... [1]

Rule:

....

....

(ii)   1   5   25   125   625   .... [1]

Rule:

....

....

(b) Find the values of

(i) $\sqrt{1{\cdot}44}$ [1]

....

(ii) $5{\cdot}2^3$ [1]

....

(c) Express 9% as a decimal. [1]

....

(d) Chris has £10. He goes into a shop to buy notebooks at 68p each. What is the greatest number of notebooks he can buy? What is his change? [3]

....

....

....

....

(e) Calculate $\dfrac{4}{9}$ of 63. [2]

....

....

8. *(a)* Simplify $a + 3b + a - 4b$. [2]

....

....

(b) Rebecca thinks of a number.
She multiplies the number by 4 and subtracts 7 to get 41.
What was her number? [2]

....

....

....

....

(c) An apple and a pear are placed on a scale, as shown in Diagram 1.
Another apple is added to the scale, as shown in Diagram 2.
Both apples have the same weight.
What is the weight of the pear? [4]
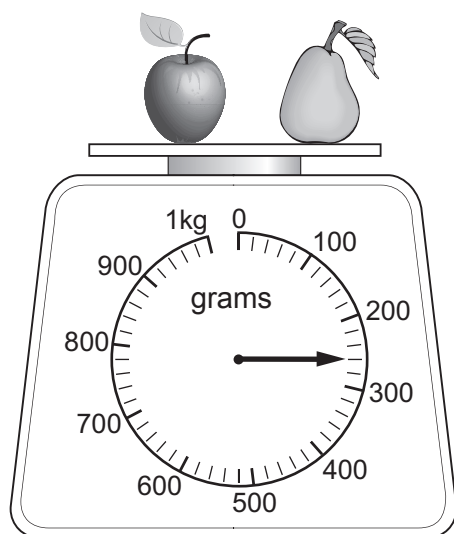
Diagram 1   Diagram 2

....

....

....

....

Examiner only
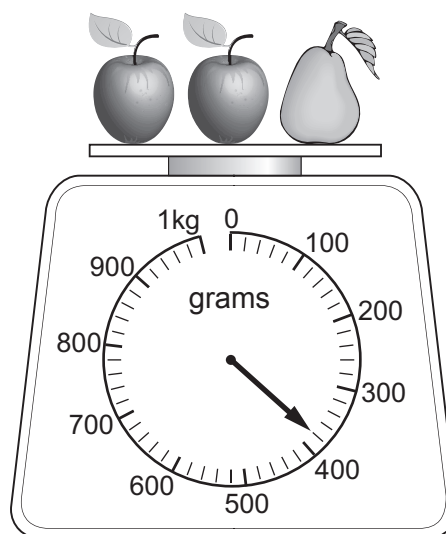
9. *(a)* Mr & Mrs Hughes received an electricity bill.
The bill, with some of the entries missing, is shown below.
Use the information given on the bill to complete all of the missing entries.
Calculate the total amount that Mr & Mrs Hughes have to pay. [5]

Power Electricity Company

Bill period 1st July 2015 to 30th September 2015

Mr & Mrs Hughes
5 Field Close
Porth
XX2 3YY

INVOICE

Meter reading this time	Meter reading previous time		Units used	Price of each unit in **pence**	Amount £
4703	3425	Units used	....	18.5p	....
		V.A.T. at 5%			....
		Total charge including V.A.T.			....
		Previous amount owing			12.46
		Amount to pay			....

(b) They wish to pay the bill in 3 equal monthly payments.
How much should each of these monthly payments be?
Give your answer correct to the nearest penny. [2]

....

....

....

Space for any extra working:

....

....

....

....

10. The scatter diagram shows the price and age for each of 12 scooters. They are all of the same make and model.

Price (£)

Number of years old
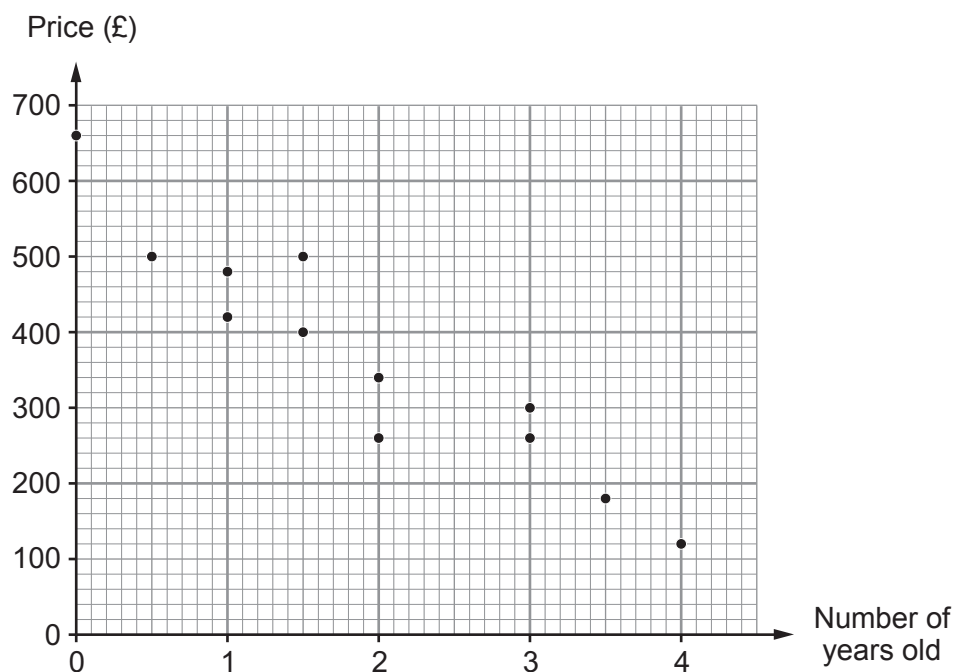
(a) Write down the price of the new scooter. [1]

....

(b) Write down the price of the oldest scooter. [1]

....

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

(d) Write down the type of correlation shown by the scatter diagram. [1]

....

(e) Estimate the price of a $2\frac{1}{2}$ year old scooter of the same make and model. [1]

....

11. Stephen and Gwen play a game using four discs. Each disc has a positive whole number on it.
The discs are placed in a bag.
Stephen selects a disc from the bag at random.
He writes down the number on the disc and replaces the disc in the bag.
Gwen now does the same. They then add together the two numbers they obtained.
If the numbers add up to give an even number, then Stephen wins. If not, Gwen wins.

(a) The numbers on the discs are

$$1 \quad 3 \quad 5 \quad 6$$
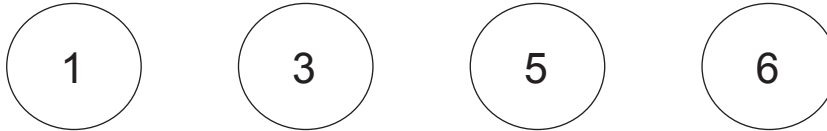
Who is more likely to win this game?
Give full details of your reasoning. [4]

....
....
....
....
....
....
....

(b) The numbers on the discs are changed, as shown below.

$$1 \quad 2 \quad 4 \quad 6$$
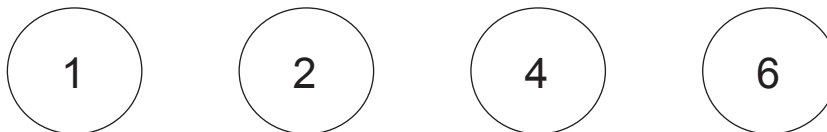
Is this game fair?
Give full details of your reasoning. [2]

....
....
....
....

(c) (i) Choose four numbers of your own so that the game is fair. [1]

○ ○ ○ ○

....

....

....

....

....

....
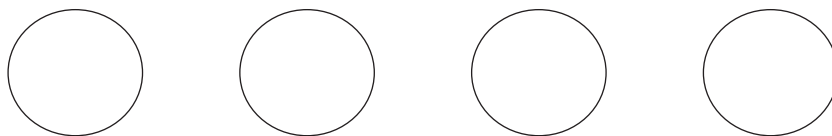
(ii) State the rule for your choice of numbers on the discs so that the game is fair. [1]

....

....

12. *(a)* Enlarge the rectangle shown by a scale factor of 2, using (2, 1) as the centre of the enlargement. [2]
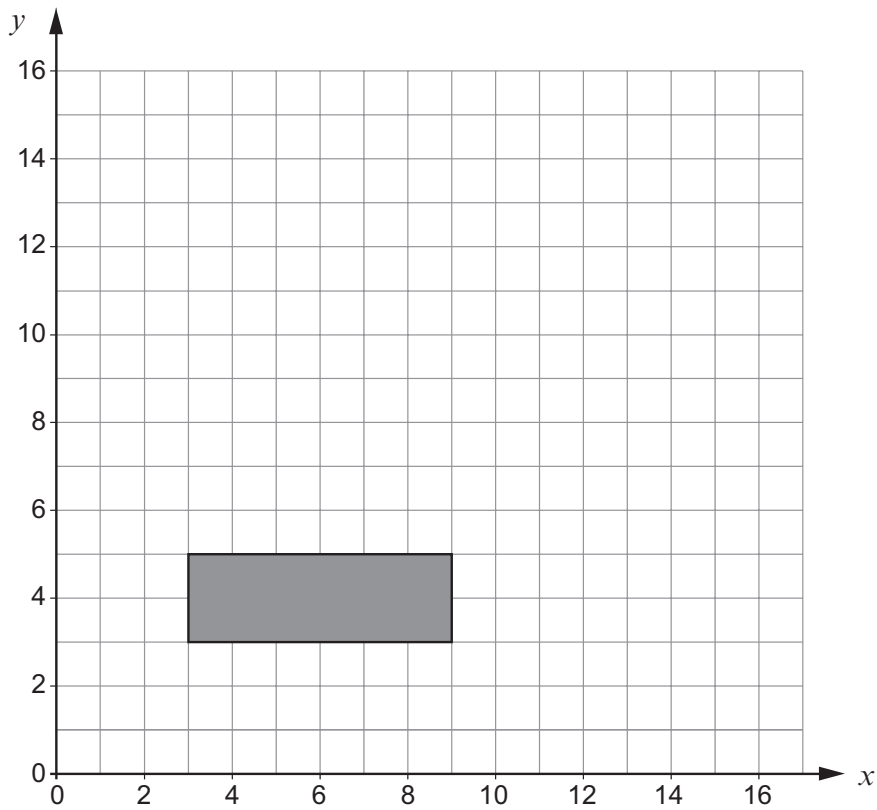
(b) Rotate the triangle shown below through 180° about the point (1, 2). [2]
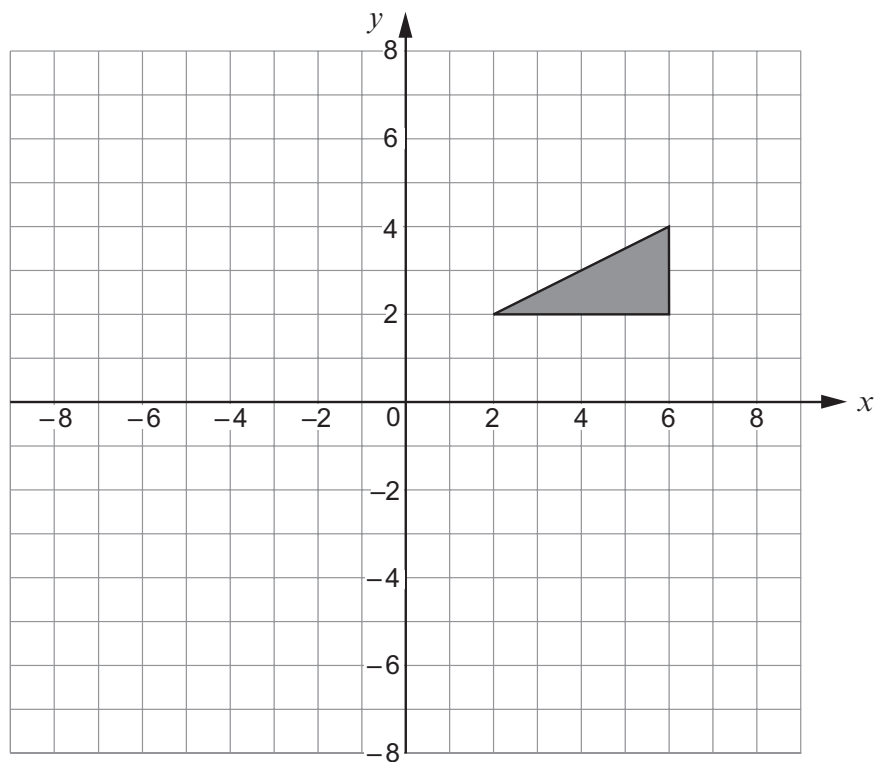
13.

Buy your holiday money here	
£1 buys	192.45 Icelandic krona
	100.32 Indian rupees
	53.67 Russian rubles

Use the exchange rates in the table to answer the following questions.

(a) Exchange £350 into Icelandic krona. [2]

....

....

.... Icelandic krona

(b) How much money, in £, would be needed to buy 2608.32 Indian rupees? [2]

....

....

£ ....

(c) Complete the sentence below. [3]

'100 Russian rubles are worth the same amount as .... Icelandic krona.'

....

....

....

....

....

....

14.

Rowena owns a car that Dafydd is planning to buy in 3 years' time.

Rowena's car is currently worth £3500.
Rowena estimates that her car will repeatedly depreciate (decrease in value) by 24% of its value each year.

Dafydd has already saved £100.
Dafydd wants to set up a savings account. He wants to save a fixed amount of money each month to buy Rowena's car in 3 years' time.

(a) What would be the minimum amount of money, to the nearest pound, that Dafydd should pay into his savings account each month?
You must show all your working. [7]

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

(b)   Do you think that this amount saved each month will guarantee (make sure) that Dafydd
will have enough money to buy Rowena's car?
You must give a reason for your answer.   [1]

....

....

....

....

....

....

....

15. *(a)* Expand $5y(2y^2 - 3)$. [2]

....

....

(b) Simplify $4h^3 \times 5h^2$. [1]

....

....

(c) Find all integers n that satisfy the inequality $6 < 2n < 13$. [3]

....

....

....

....

....

....

END OF PAPER