Surname	Centre Number	Candidate Number
Other Names		0

GCSE LINKED PAIR PILOT

4363/01

METHODS IN MATHEMATICS

UNIT 1: Methods (Non-Calculator)
FOUNDATION TIER

A.M. MONDAY, 9 June 2014

1 hour 30 minutes

Suitable for Modified Language Candidates

CALCULATORS ARE NOT TO BE USED FOR THIS PAPER

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.

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**.

For Examiner's use only		
Question	**Maximum Mark**	**Mark Awarded**
1.	**8**	
2.	**4**	
3.	**4**	
4.	**8**	
5.	**6**	
6.	**6**	
7.	**5**	
8.	**4**	
9.	**9**	
10.	**4**	
11.	**4**	
12.	**4**	
13.	**3**	
14.	**4**	
15.	**3**	
16.	**4**	
Total	**80**	

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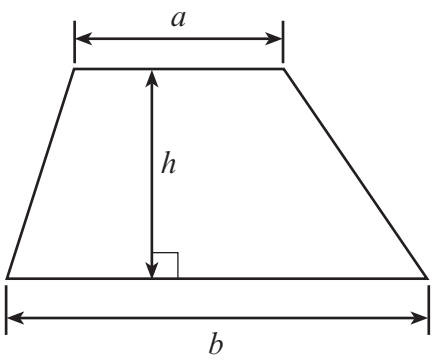
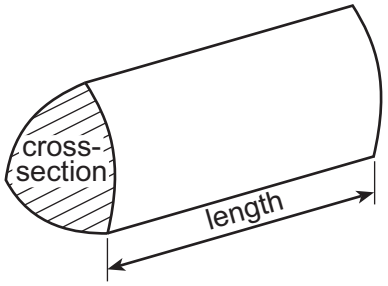
Formula List

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



Volume of prism = area of cross-section × length



Examiner only

1. *(a)* (i) Write down, in figures, the number nineteen thousand and four. [1]

.....

(ii) Write down, in words, the number 550 000. [1]

.....

(b) (i) Write down the sum of 129 and 251. [1]

.....

.....

.....

(ii) Write down the difference between 83 and 67. [1]

.....

.....

.....

(iii) Write down the answer when 9 is multiplied by 6. [1]

.....

(iv) Write down the answer when 65 is divided by 5. [1]

.....

.....

(c) (i) Write 2187 to the nearest 10. [1]

.....

(ii) Write 54 478 to the nearest 1000. [1]

.....

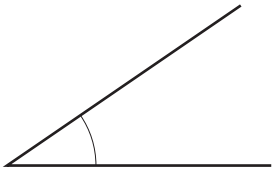
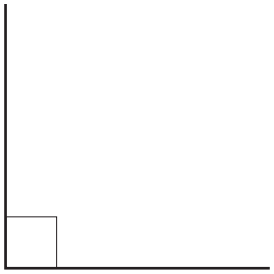
Examiner only

2. Match each event to its chance of happening.
One is done for you. [4]

Obtaining a red counter when selecting one counter at random from a bag containing 5 red and 5 yellow counters	**CERTAIN**
Obtaining a number less than 7 when rolling a fair dice numbered 1 to 6	**LIKELY**
Obtaining a number greater than 1 when rolling a fair dice numbered 1 to 6	**EVEN CHANCE**
Obtaining a blue counter when selecting one counter at random from a bag containing 5 red and 5 yellow counters	**UNLIKELY**
Obtaining the number 4 when rolling a fair dice numbered 1 to 6	**IMPOSSIBLE**

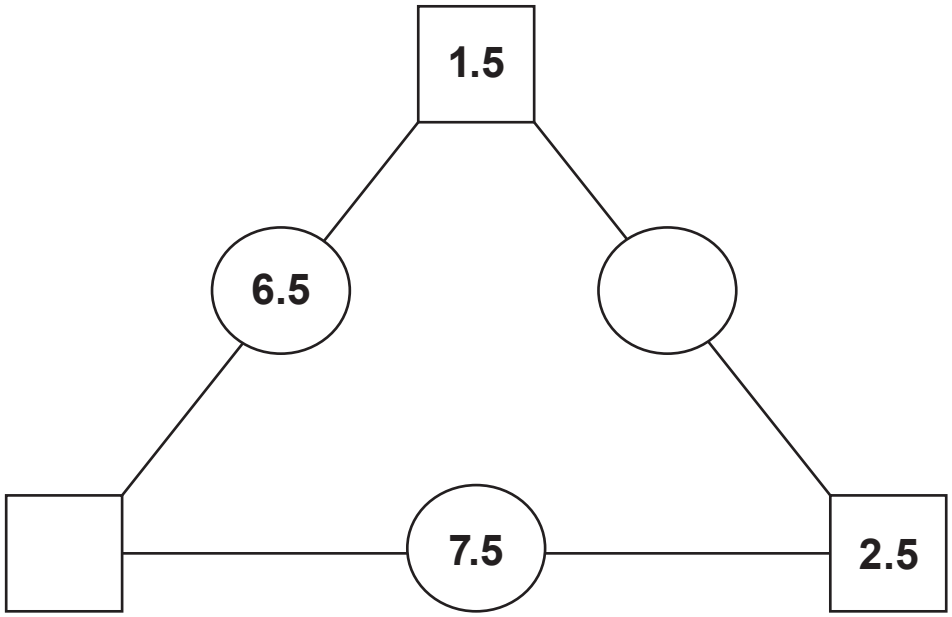
Examiner only

3. Complete the following table.
The first row has been done for you. [4]

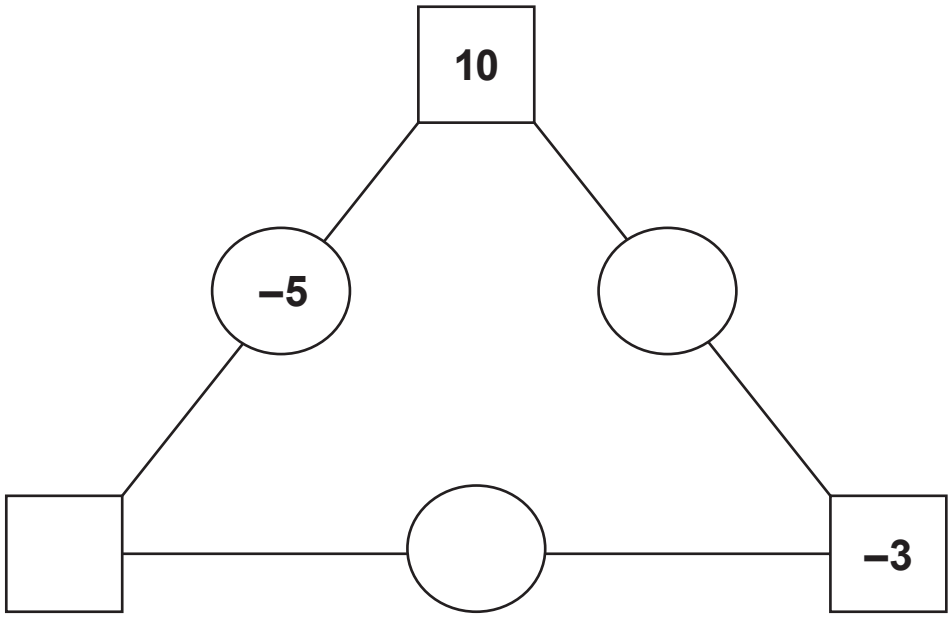
Angle	Name of angle	Reason
	**Acute**	**The angle is between 0° and 90°**
		
		

Examiner only

4. *(a)* The number in each circle is equal to the sum of the two numbers in the squares on either side of the circle.
Fill in the missing numbers in each of the following diagrams.



[2]



[3]

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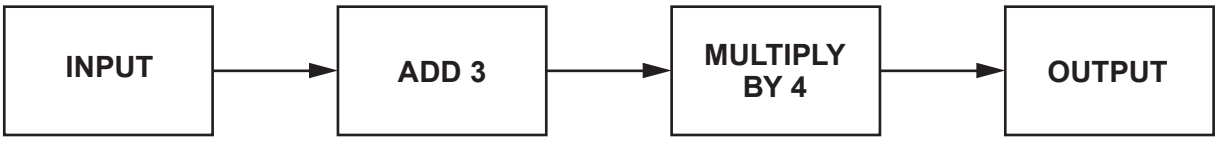
(b) The diagram below shows a number machine.



Using the number machine, calculate

(i) the **OUTPUT** when the **INPUT** is 9, [1]

.....

(ii) the **OUTPUT** when the **INPUT** is –1, [1]

.....

(iii) the **INPUT** when the **OUTPUT** is 28. [1]

.....

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Turn over.

Examiner only

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

Both *Len's Store* and *Deb's Store* sell the same moisturising lotion. The bottles are the same size.

Siwan needs to buy 12 bottles of moisturising lotion.
Which of the two stores has the better offer for Siwan?
You must show all your working. [6]

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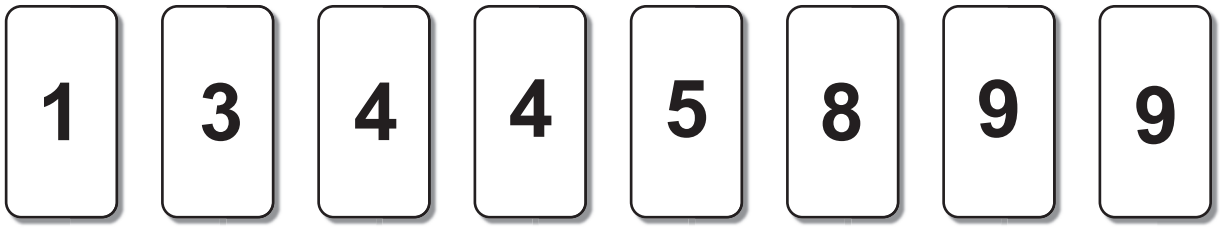
6.



One card is chosen at random from the cards shown above.

Write down the probability of selecting each of the following

(a) the number 5, [1]

.....

(b) a number less than 4, [1]

.....

(c) a multiple of 2, [1]

.....

(d) a square number, [1]

.....

(e) a prime number, [1]

.....

(f) the square root of 16. [1]

.....

Examiner only

7. *(a)* **Showing all your working**, write $\frac{1}{2}$, $\frac{5}{8}$, and $\frac{3}{4}$ in order, starting with the largest. [3]

(b) Write down 50p as a fraction of £4 in its simplest form. [2]

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8.

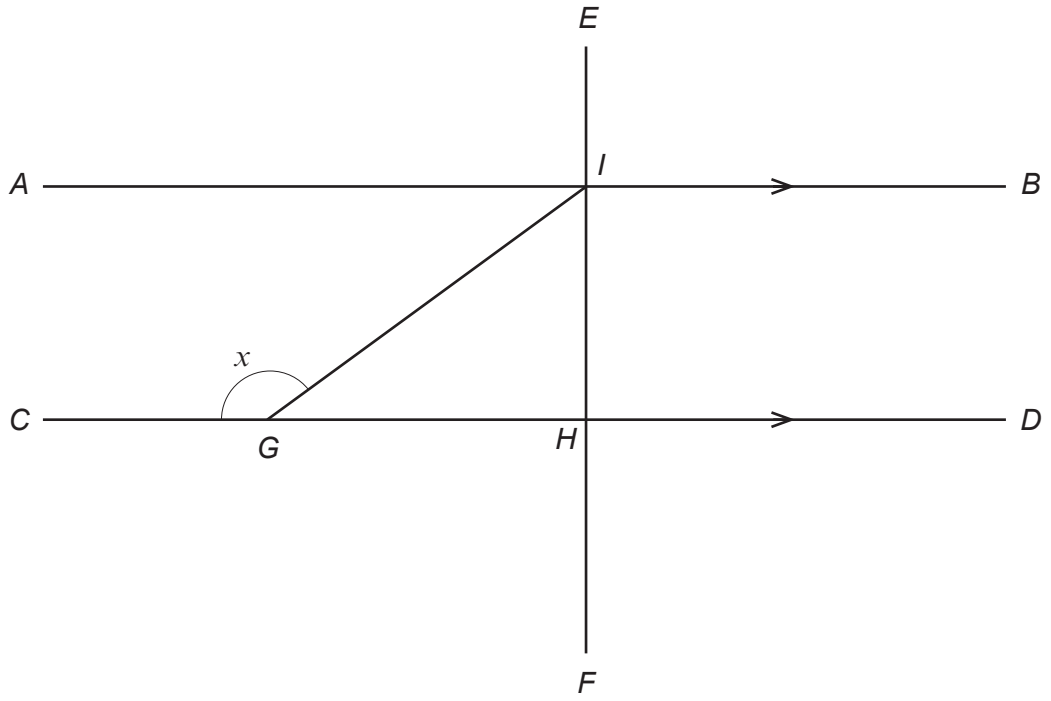


Diagram not drawn to scale

The line *AB* is parallel to the line *CD*.
The line *CD* is perpendicular to the line *EF*.
Triangle *GHI* is an isosceles triangle.
Find the size of angle x. [4]

Turn over.

Examiner only

9. *(a)* Simplify $x + 2x + 5x$. [1]

.....

(b) Simplify $10a + 7b - 12a + 2b$. [2]

.....

(c) Find the value of $10x + 3y$, when $x = -4$ and $y = 5$. [2]

.....

.....

(d) Expand $2x(3y + 7)$. [2]

.....

(e) Factorise $10ab - 25a$. [2]

.....

Examiner only

10. *(a)* A bag contains only red, yellow, green and blue coloured sweets.
The table below shows the probability of choosing each colour of sweet, when one sweet is chosen at random from the bag.

Colour	**Red**	**Yellow**	**Green**	**Blue**
Probability	0·2	0·15	0·25	

(i) What is the probability of choosing a blue sweet? [2]

.....

.....

(ii) Which **two** colours are the least likely to be chosen? [1]

.....

(b) For a different bag of sweets, the probability of choosing a purple sweet is 0·7.
What is the probability of **not** choosing a purple sweet? [1]

.....

Turn over.

Examiner only

11.

$6c + 3$ $\quad$ $3c + 6$ $\quad$ $3c$

$c + 3$ $\quad$ $6(c + 3)$

$\frac{c + 3}{6}$ $\quad$ $3(c + 6)$ $\quad$ $\frac{c}{6} + 3$

Fill in the table below to match each statement with one of the expressions given above. [4]

STATEMENT	EXPRESSION
Three times a number c	
Add 3 to a number c and then multiply this total by 6	
Three times a number c and then add 6	
Add 3 to a number c and then divide this total by 6	

Examiner only

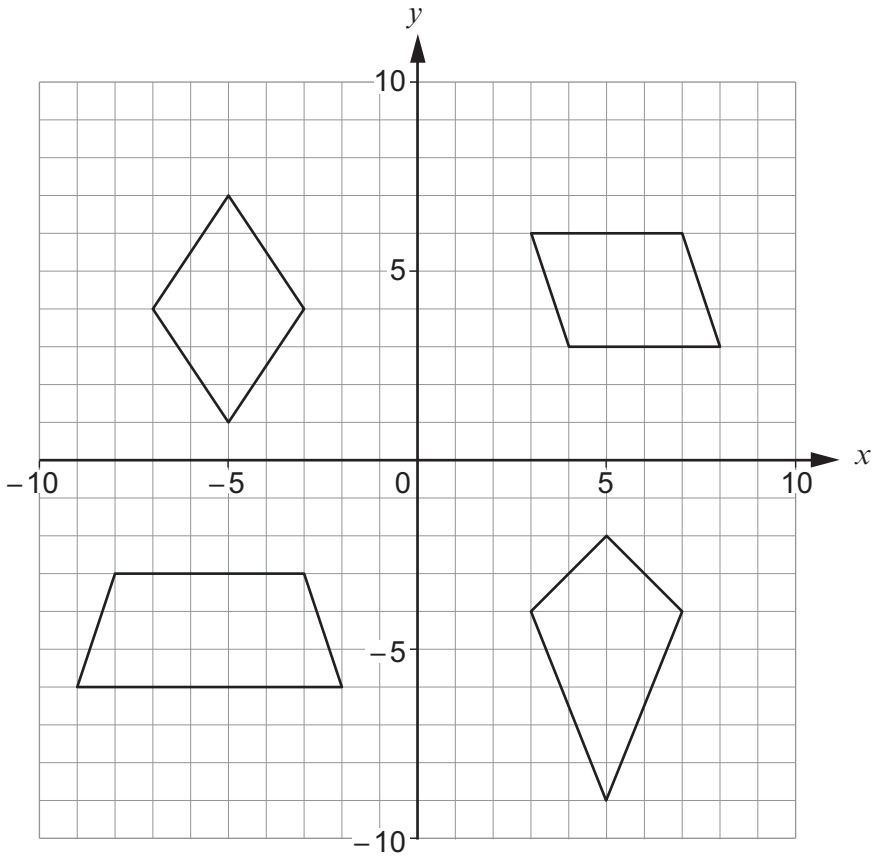
12. *(a)* Write down the name of a quadrilateral with diagonals that are equal in length. [1]

.....

(b) Write down the name of a quadrilateral with rotational symmetry of order 2. [1]

.....

(c) The diagram below shows four quadrilaterals drawn on a grid.



(i) Write down the coordinates of the centre of rotational symmetry of the rhombus. [1]

(..... , ...)

(ii) Write down the coordinates of the intersection of the diagonals of the kite. [1]

(..... , ...)

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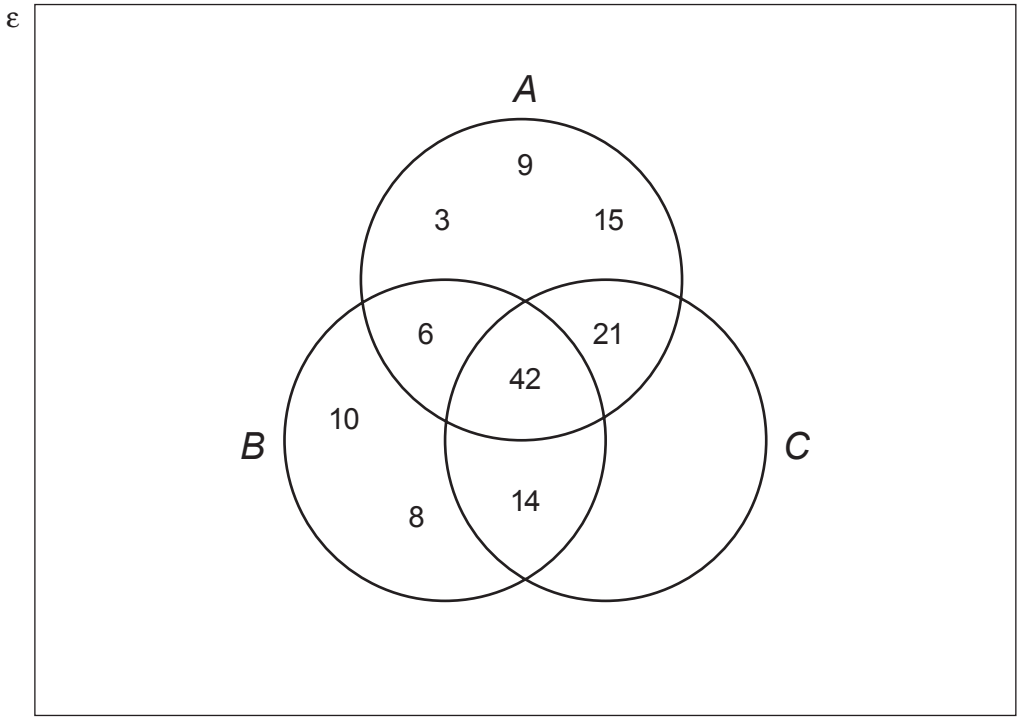
13. The Venn Diagram below shows all the values of a given universal set, which have been placed within the subsets *A*, *B* and *C*.



(a) The descriptions for Set *A* and Set *B* are given below.
Complete the description for Set *C*. [1]

Set *A*: **multiples of 3**

Set *B*: **multiples of 2**

Set *C*: **multiples of** .....

(b) The numbers 28 and 35 are to be included in the universal set.
Write 28 and 35 in the correct positions in the Venn diagram above. [2]

.....

.....

.....

Examiner only

14. There are two regular polygons, *X* and *Y*.
The size of each **exterior** angle in regular polygon *X*, is 9°.
Each **interior** angle of regular polygon *Y* is 120°.

Complete the sentences below. [4]

Regular polygon *X* has ..... sides.

Regular polygon *Y* has ..... sides.

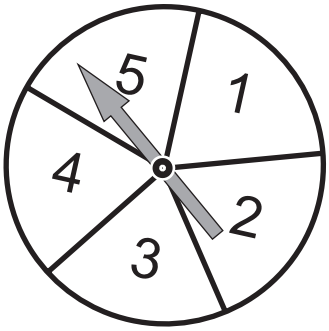
15.

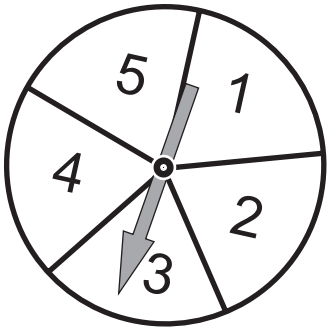
Diagram not drawn to scale

ABC is a straight line, *AB:BC* is 3:8 and the length of *BC* = 36 cm.
Calculate the length of *AC*. [3]

Examiner only

16.





The two spinners are spun.
The score is the total of the two numbers shown on the spinners.
The score shown above is eight.

There are two different game cards, card A and card B.
A game is played, crossing out the scores from the spinners on the game card as the spinners are spun repeatedly.
The first game card with all four scores crossed out is the winning card.

Game card A

3	2
9	10

Game card B

4	6
5	7

Which game card is more likely to be the winning card?
You must show your working. Give a reason for your answer. [4]

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END OF PAPER