RECOGNISING ACHIEVEMENT

Oxford Cambridge and RSA Examinations

General Certificate of Secondary Education

MATHEMATICS SYLLABUS A
PAPER 1
FOUNDATION TIER

1962/1

Specimen Paper 2003

Additional materials: Geometrical instruments, Tracing paper (optional).
Candidates answer on the question paper.

TIME 1 hour 30 minutes

Candidate Name	Centre Number	Candidate Number

INSTRUCTIONS TO CANDIDATES

- Write your name in the space above.
- Write your Centre number and Candidate number in the boxes above.
- *Answer all the questions*.
- Write your answers, in blue or black ink, in the spaces provided on the question paper.
- Read each question carefully and make sure you know what you have to do before starting your answer.
- Show all your working. Marks may be given for working which shows that you know how to solve the problem even if you get the answer wrong.

YOU ARE NOT ALLOWED TO USE A CALCULATOR IN THIS PAPER.

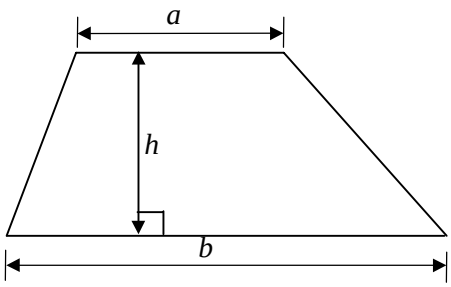
INFORMATION FOR CANDIDATES

- The number of marks is given in brackets [ ] at the end of each question or part question.
- This question paper consists of 16 printed pages.

For examiner's use only

FORMULAE SHEET: FOUNDATION TIER

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



1 Here is a list of numbers.

14, 15, 16, 17, 18, 19, 20

(a) From this list, write down

(i) an odd number,

Answer (a)(i) _____ **[1]**

(ii) two numbers that add to give 32.

_____

Answer (ii) _____ **[1]**

(b) **(i)** Which number in the list is a square number?

Answer (b)(i) _____ **[1]**

(ii) Explain why this is a square number.

_____

_____ **[1]**

(c) **(i)** Which number in the list has 6 as a factor?

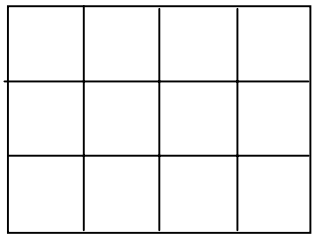
Answer (c)(i) _____ **[1]**

(ii) Explain why this number has 6 as a factor.

_____

_____ **[1]**

2 **(a)** The rectangle below is made up of squares of side 1 cm.



(i) Work out the perimeter of this rectangle.

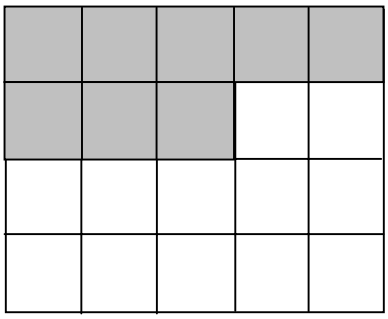
Answer (a)(ii) _____ cm^2 **[2]**

(ii) Write down the area of this rectangle.

Answer (ii) _____ cm^2 **[2]**

(b) What fraction of the rectangle below is shaded?

Give your answer in its simplest form.

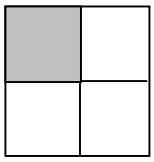


_____

_____

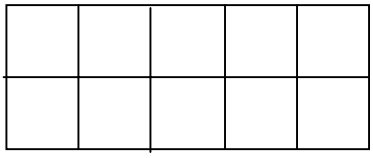
Answer (b) _____ **[2]**

(c) What percentage of the whole square has been shaded?



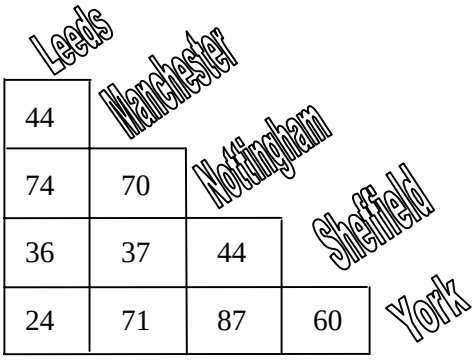
Answer (c) _____ % **[1]**

(d) Shade 0.4 of this rectangle.



[1]

3 The table below shows the distances, in miles, between some cities.
For example, the distance from Sheffield to Leeds is 36 miles.



A delivery driver makes journeys between these cities.

(a) One journey is between Manchester and Sheffield.
How far is this journey?

Answer (a) _____ miles **[1]**

(b) **(i)** The driver makes a trip from York to Leeds then to Nottingham and finally back to York.

How far did he travel?

_____

_____

Answer (b)(i) _____ miles **[2]**

(ii) The driver left York at 14:30.

Write this time as a 12 hour clock time.

Answer (ii) _____ **[1]**

(iii) When the driver arrived back in York, the time was 21:05.

How long did the journey take?

_____

_____

Answer (iii) _____ **[2]**

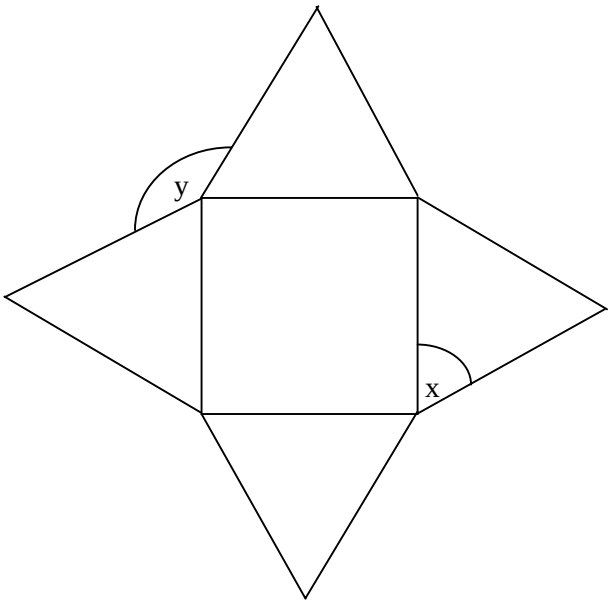
(c) One month the driver travelled a total distance of 1785 miles.

Write this distance, correct to the nearest 100 miles.

_____

Answer (c) _____ miles **[1]**

4 Below is the net of a solid.
All the lines drawn are the same length.



(a) Write down the full mathematical name of the solid that the net will make.

Answer (a) _____ **[2]**

(b) Measure and write down the length of one of the lines in the diagram.

Answer (b) _____ cm **[1]**

(c) Measure and write down the size of angle

(i) x,

Answer (c)(i) _____ ° **[1]**

(ii) y.

Answer (ii) _____ ° **[1]**

(d) What is the special mathematical name given to the triangles in this net?

Answer (d) _____ **[1]**

(e) Draw the lines of symmetry of the net on the diagram above.

[2]

5 The heights of twenty Year 7 students were measured in metres.
The measurements, to the nearest 0.1 metre, are given below.

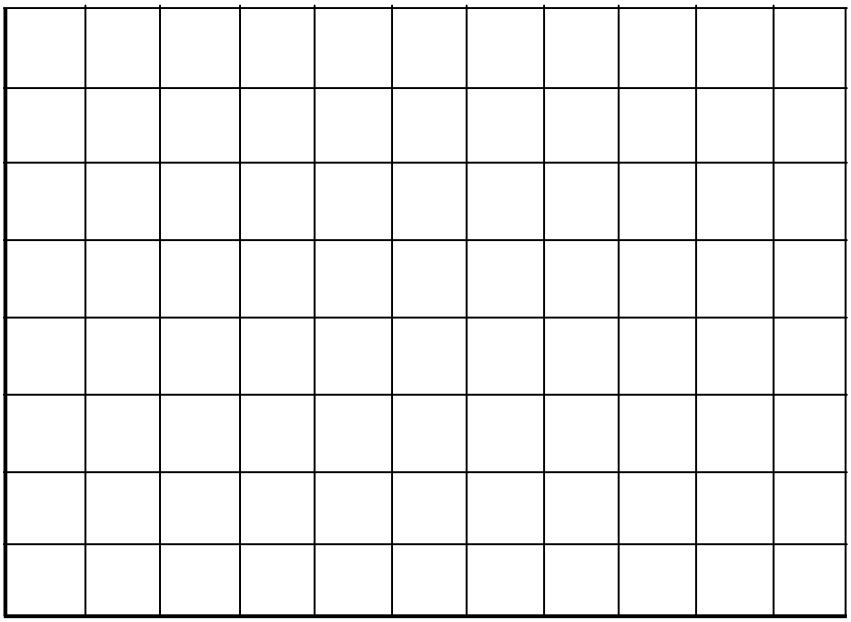
1.5	1.5	1.8	1.6	1.7	1.5	1.6	1.9	1.7	1.6
1.9	1.7	1.5	1.6	1.6	1.7	1.5	1.7	1.6	1.9

(a) Complete the frequency table below.

Height (m)	Tally	Frequency
1.5		
1.6		
1.7		
1.8		
1.9		

[2]

(b) Use the grid below to draw a bar chart for the information in the frequency table.
Make sure you label your diagram clearly.



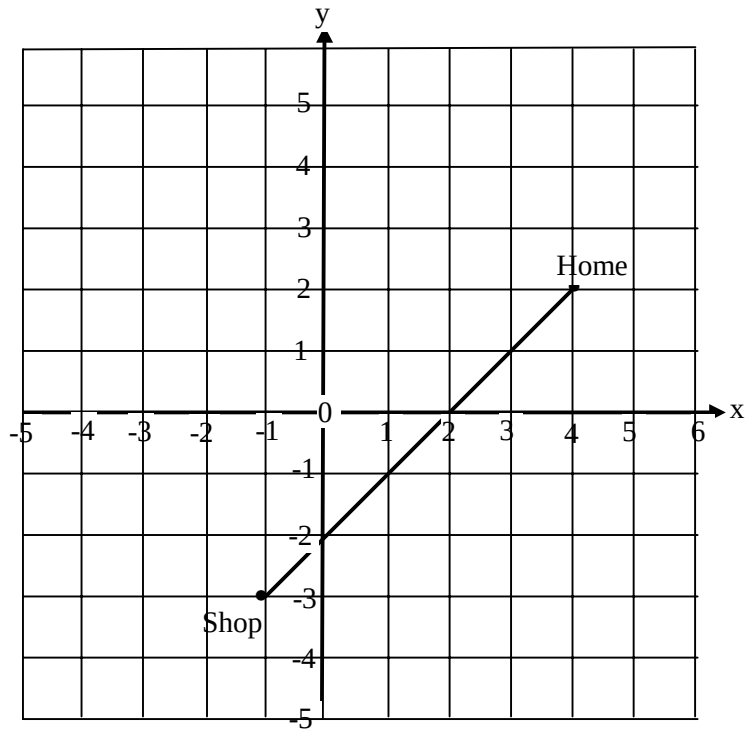
[3]

(c) One of these students is chosen at random.

What is the probability that this student is 1.7 m tall?

Answer (c) _____ **[2]**

6 Some places are shown on the grid below.



(a) Write down the coordinates of Home.

Answer (a) (_____ , _____) **[1]**

(b) A friend lives at (1, 5).

Mark this point on the grid and label it F. **[1]**

(c) Write down the coordinates of the Shop.

Answer (c)(_____ , _____) **[1]**

(d) School is at (–4, 4).

Mark this point on the grid and label it S. **[1]**

(e) The scale of the diagram is 1 cm represents 100 m.

Measure the line and work out the real distance from Home to the Shop.

_____

_____

*Answer (e)*_____ m **[2]**

7 A farmer has 45 sheep.
$\frac{2}{5}$ of them are black.

He sells the black sheep for £50 each.

How much does he receive?

Answer £ _____ **[4]**

8 One student scored the following marks in his times tables tests.

9, 6, 5, 8, 4, 10, 5, 8, 7, 8

(a) Write down the mode of his marks.

Answer (a) _____ **[1]**

(b) Work out the mean of his marks.

Answer (b) _____ **[3]**

9 **(a)** Simplify $5p + 3p + 4p$.

Answer (a) _____ **[1]**

(b) Solve the following equations.

(i) $15 - x = 9$

Answer (b)(i) $x =$ _____ **[1]**

(ii) $6y = 48$

Answer (ii) $y =$ _____ **[1]**

(c) For the formula
$r = 5q - 4$,
find the value of r when $q = 20$.

Answer (c) $r =$ _____ **[2]**

---

10 **(a)** Work out

(i) $\sqrt{49}$

Answer (a)(i) _____ **[1]**

(ii) 2^4,

Answer (ii) _____ **[1]**

(iii) 3^3,

Answer (iii) _____ **[1]**

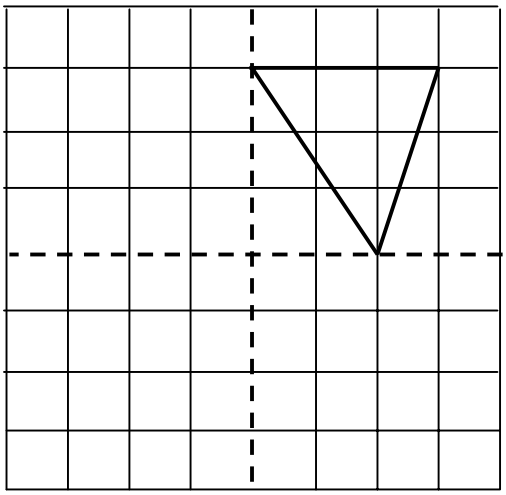
(b) Write down the next two terms of the sequence

21 15 9 _____ _____

[2]

11 The diagram shows part of a design.
The dotted lines are lines of symmetry of the whole design.

(a) Complete the design.

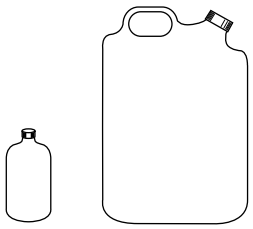


[3]

(b) Write down the order of the rotational symmetry of the completed design.

Answer (b) _____ **[1]**

12 A hairdresser buys shampoo in 2.5 litre containers.
She buys 6 of these containers.



(a) How many **millilitres** of shampoo is this?

Answer (a) _____ ml **[2]**

Because the containers are bulky, the hairdresser pours shampoo into a small bottle.
When the small bottle is full it will hold 200 ml. When it is empty she refills the bottle.
During the process of filling the small bottle she spills 5% of the shampoo.

(b) How many times can she fill the small bottle?
Show all your working clearly.

Answer (b) _____ **[6]**

13 There are blue, red and yellow discs in a bag.
When a disc is picked out at random, the probability of it being red is 0.4 and the probability of it being blue is 0.3.

(a) What is the probability of picking a yellow disc?

Answer (a) _____ **[2]**

There are 60 discs in the bag.

(b) Work out how many of them are red.

Answer (b) _____ **[2]**

14 **(a)** Simplify $3x + 4y - 2x + 7y$.

Answer (a) _____ **[2]**

(b) Solve the equations

(i) $2(3x - 2) = 50$,

Answer (b)(i) $x =$ _____ **[3]**

(ii) $7x = 6 + 3x$.

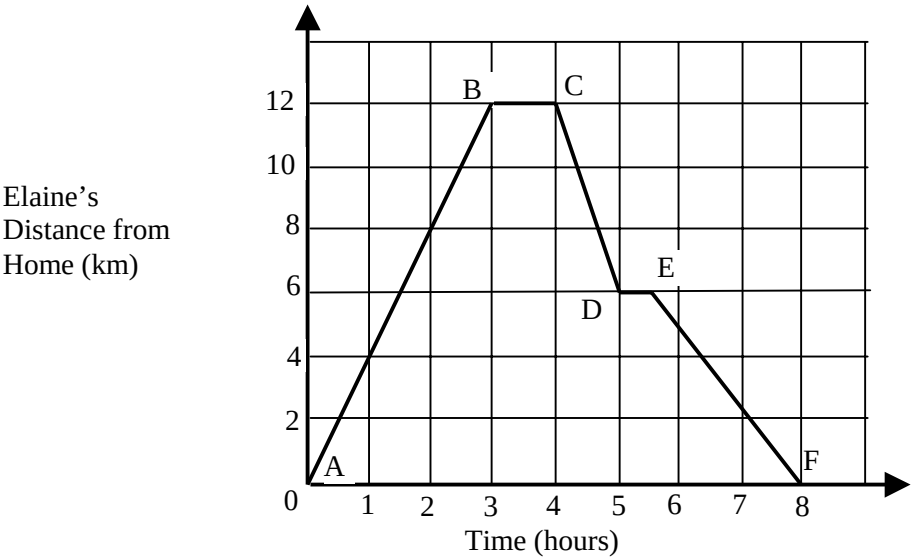
Answer (ii) $x =$ _____ **[2]**

15 Estimate the answer to the following.

$$\frac{83.4+39.72}{5.8\times10.1}$$

Answer _____ **[2]**

16 **(a)** Elaine went for a walk.
Her walk is represented by the graph below.



(i) Describe the part of her walk represented by the sections CD, DE and EF.

_____

_____

_____

_____

_____ **[2]**

(ii) On which section of the walk did she walk fastest?

Answer (ii) _____ **[1]**

(iii) What was her average speed for the first 2 hours?

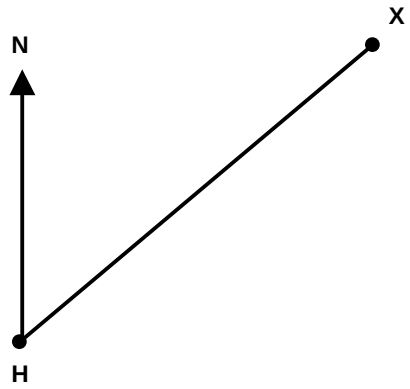
_____

_____

_____

Answer (iii) _____km/h **[2]**

16 **(b)** The diagram shows the position of Elaine's house, H, and her position, X, on another of her walks.
The scale of the diagram is 1 cm represents 2 km.



(i) Measure and write down the bearing and distance, in km, of X from H.

Answer (b)(i) Bearing _____ °

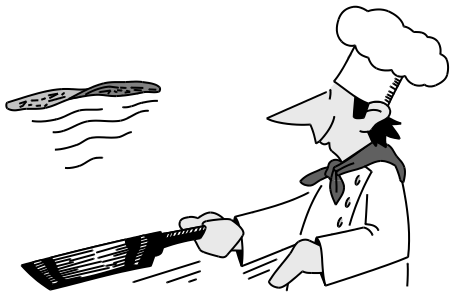
Distance _____ km **[2]**

Elaine then walks to a position Y, which is 15 km from H and on a bearing of 260° from H.

(ii) Mark the position of Y on the diagram. **[2]**

17 **(a)** A recipe for pancake mixture is as follows.

To make 10 pancakes	
300 ml	milk
124 g	plain flour
2	eggs
½ teaspoon	salt



Complete the list of ingredients for 15 pancakes.

To make 15 pancakes

_____ milk

_____ plain flour

_____ eggs

_____ teaspoon salt

[4]

(b) A frying pan is used to cook the pancakes.
The inside base of the frying pan is a circle of radius 10cm.

Work out the area of the inside base of the frying pan.
Take the value of π to be 3.14159.
Give your answer to an appropriate degree of accuracy.

Answer (b) _____ cm^2 **[3]**

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PAPER 1
FOUNDATION TIER
MARK SCHEME

1962/1

Specimen Paper 2003

1	**(a)**	**(i)**	15, 17 or 19	1		
		(ii)	14, 18 or 15,17	1		
	(b)	**(i)**	16	1		
		(ii)	4×4 oe	1		
	(c)	**(i)**	18	1		
		(ii)	6×3 oe	1		
2	**(a)**	**(i)**	14	1		
		(ii)	12	1		
			cm^2	U1		
	(b)		$\frac{2}{5}$	2	B1	for $\frac{8}{20}$ or better
	(c)		25	1		
	(d)		4 squares shaded	1		
3	**(a)**		37	1		
	(b)	**(i)**	185	2	B1	for 2 of 24, 74, 87 seen
		(ii)	2.30 pm	1		
		(iii)	6 hr 35 min	2	M1	for attempt to 21 05 – 14 30
	(c)		1800	1		
4	**(a)**		square base	1		
			pyramid	1		
	(b)		2.9 cm ± 2mm	1		
	(c)	**(i)**	60 ± 2°	1		
		(ii)	150 ± 2°	1		
	(d)		equilateral	1		
	(e)		4 correct lines	2	B1	for 2 lines correct and none wrong
5	**(a)**		5, 6, 5, 1, 3	2	B1	for 3 values correct
	(b)		Labels/scale	L1		
			Bars	B1		
			Heights	H1		
	(c)		$\frac{5}{20}$	2	M1	for $\frac{x}{20}$ or $\frac{5}{\textit{their}\ 20}$

6	**(a)**	(4, 2)	1	
	(b)	Point correct	1	
	(c)	(-1, -3)	1	
	(d)	Point correct	1	
	(e)	580 ± 20	2	M1 for 7.1 ± 2
7	900		4	M1 for $45 \div 5 \times 2$ and A1 for 18 and M1 for their $(18) \times 50$
8	**(a)**	8	1	
	(b)	7	3	B1 for 70 and M1 for $\frac{\textit{their}\,70}{10}$
9	**(a)**	$12p$	1	
	(b)	**(i)** 6 **(ii)** 8	1 1	
	(c)	96	2	M1 for $5 \times 20 - 4$
10	**(a)**	**(i)** 7 **(ii)** 16 **(iii)** 27	1 1 1	
	(b)	3, -3	2	B1 for one correct value
11	**(a)**	Completed design	3	B1 for each correct quadrant
	(b)	2	1	
12	**(a)**	15000	2	M1 for $2.5 \times 6 \times 1000$
	(b)	71	6	M1 for 0.05×15000 oe and A1 for 750 and B1 for 14250 and M1 for $\frac{14250}{200}$ and A1 for 71.(25)
13	**(a)**	0.3	2	M1 for $1 - (0.4 + 0.3)$
	(b)	24	2	M1 for 60×0.4

14	**(a)**	(1)$x + 11y$		2	B1 for one term correct
	(b)	**(i)**	9	3	M1 for $6x - 4 = 50$ and A1 for $6x = 54$
		(ii)	$1\frac{1}{2}$ oe	2	M1 for $4x = 6$
15	2			2	B1 for 120 or 60 seen
16	**(a)**	**(i)**	Walks back oe Has a rest oe	1 1	
		(ii)	CD	1	
		(iii)	4 km/h	2	M1 for $\frac{8}{2}$
	(b)	**(i)**	(0)50 ± 1^{o} 12 km ± 1km	1 1	
		(ii)	Correct Point	2	B1 for angle 260 ± 1^{o} or B1 for distance 7.5 cm ± 0.1 cm
17	**(a)**		450 ml 186 g 3 $\frac{3}{4}$	1 1 1 1	
	(b)		314 or 310	3	M1 for $3.14... \times 10^{2}$ oe and A1 for 314. ... or 30^{o}

1662 Analysis				Year					Target Grades								AO1		
Paper 1																			
Qn	NC ref	Syll ref	Topic/Context	Nu	Man Alg	Non Man Alg	SS	HD	G	F	E	D	M/ S	Com F/1	ComI/ H	Str 1	Str 2	Str 3	Notes
1	2.1e,	2.2a,	2.2b, 2.3a	6					6									2	
2	2.1e,	2.1g,	2.2c, 2.2d, 2.2e, 2.3e,3.4f	4		3			7										
3	2.1b,	2.1e,	2.2a, 2.3a	7					7										
4	3.1d,	3.1f,	3.2d, 3.2k, 3.3b, 3.4d			8			4	4									
5	4.1f,	4.4a,	4.4d					7	5	2							3		
6	3.1d,	3.3e,	3.4a				6		2	4									
7	2.3a,	2.3d		4					2	2			4			4			
8	4.4b							4	1	3									
9	2.5a,	2.5b,	2.5e, 2.5f		3	2				5									
10	2.2b,	2.6a		3		2				1	4								
11	3.3a,	3.3b					4			1	3			3					
12	2.1b,	2.1e,	2.1h, 2.1k, 2.3m, 2.3l, 2.4b, 2.4d	8							8		6	8		6			
13	4.1c,	4.4d,	4.4f					4			2	2		4					
14	2.5b,	2.5e			7						2	5		7					
15	2.3h			2								2							
16	2.1a,	2.6c,	2.6e			5					2	3		5			5		
	3.1d,	3.4d,	3.4b				4				2	2		4					
17	2.3c,	2.3n		4								4		4					
	3.1e,	3.4h					3					3		3			1		
				38	10	9	28	15	34	22	23	21	10	42		10	9	2	