

# NEW SPECIMEN PAPERS PUBLISHED JUNE 2015

# GCSE Mathematics Specification (8300/2F)



Paper 2 Foundation tier

Date Morning 1 hour 30 minutes

### **Materials**

### For this paper you must have:

- a calculator
- mathematical instruments.



### Instructions

- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the bottom of this page.
- Answer all questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book.
- In all calculations, show clearly how you work out your answer.

### Information

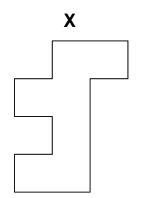
- The marks for questions are shown in brackets.
- The maximum mark for this paper is 80.
- You may ask for more answer paper, graph paper and tracing paper.
   These must be tagged securely to this answer book.

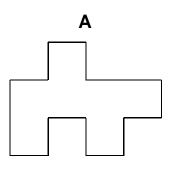
Please write clearly, in block capitals, to allow character computer recognition.						
Centre number	Candidate number					
Surname						
Forename(s)						
Candidate signature						

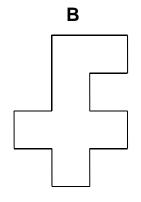
	Answei	r <b>all</b> questions in	the spaces provided.		
1	Which of these numbers is <b>one more</b> than a multiple of 5? Circle your answer.				[1 mark]
	15	19	26	30	
2	Which of these number Circle your answer.	rs has <b>exactly th</b>	ree factors?		[1 mark]
	3	4	5	6	
3	Which of these number Circle your answer.	rs is 6 <b>less</b> than -	-1.4?		[1 mark]
	-8.4	-7.4	-2.0	4.6	

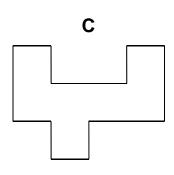
Which shape is congruent to shape  $\mathbf{X}$ ? 4 Circle the correct letter.

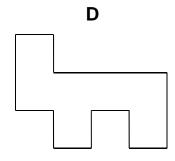
[1 mark]





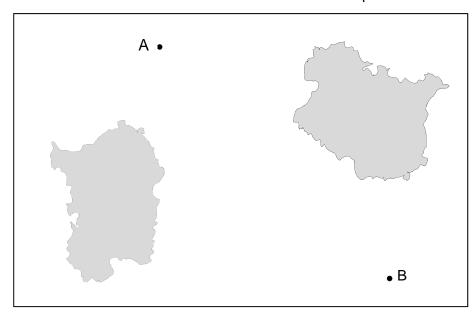






5	The map	shows the	positions	of two	ships, A	and B.
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Scale: 1 cm represents 2.5 km



Work out the actual distance between the ships.

[2 marks]

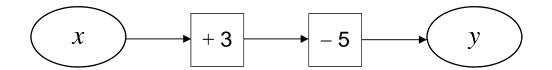
Answer \_\_\_\_\_

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km

6	A gym has 275 members.	
	40% are bronze members.	
	28% are silver members.	
	The rest are gold members.	
	The rest are gold members.	
	Work out the number of gold members.	
		[3 marks]
	Answer	
		_
	Turn over for the next question	
	·	

7 (a) Alan is looking at number machine problems.



He says,

"If I know y I can work out x.

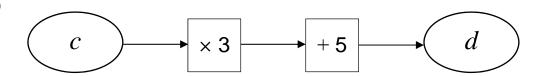
I subtract 3 then I add 5."

Does this method work?

Give a reason for your answer.

[1 mark]

7 (b)



He says,

"If I know d I can work out c.

I divide by 3, then subtract 5."

Does this method work?

Give a reason for your answer.

[1 mark]

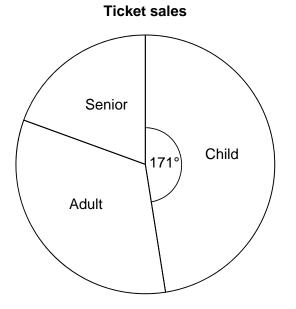
8 (a)	Solve $5w - 11 = 24$	[2 marks]
	w =	
8 (b)	Write an expression for the total cost, in pounds, of	
	$\it x$ jumpers at £15 each and	
	y shirts at £12 each.	[1 mark]
	Answer	
8 (c)	Simplify $x + x + y \times y$	[1 mark]
	Answer	

9	Lucy says, "3 is odd and 2 is even, so when you add a multiple of 3 to a multiple of 2 the answer is always odd."  Is she correct?  Write down a calculation to support your answer.	[1 mark]
10	Tom earns £9.20 per hour.  He works for  24 hours each week 48 weeks each year.  He pays tax if he earns more than £10 000 per year.  Does Tom pay tax?  You must show your working.	[2 marks]

11	Three boxes contain counters.  Box A  Box B  Box C  There are 62 counters in total.  The total number of counters in box A and box B is 34  The difference between the number of counters in box A and box C is 9  Work out the number of counters in each box.  [3 marks]	<b>;</b> ]
	Box A Box B Box C  Turn over for the next question	

The pie chart shows information about the sales of 800 tickets.

There were twice as many adult ticket sales as senior ticket sales.



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12 (a)	Show that there were 140 senior ticket sales.	[3 marks]

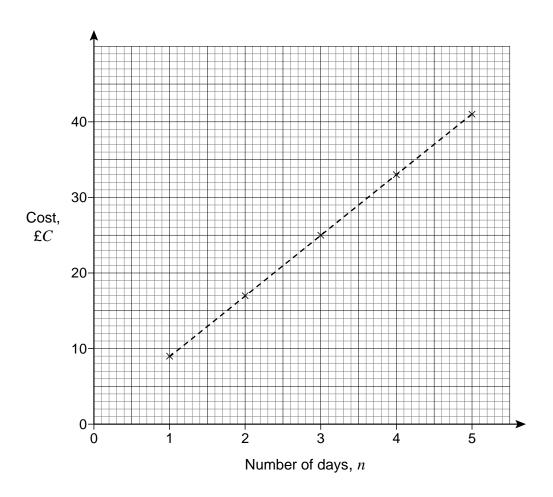
	Ticke	et sales	

13		Alice makes cards.  Each card uses 42 cm of ribbon.  She has 1000 cm of ribbon.	
13	(a)	Work out the <b>maximum</b> number of cards she can make.	[2 marks]
		Answer	
13	(b)	How much ribbon will be left over?	[1 mark]
		Answer	cm

14	Luke saves 10p coins and 20p coins.	
	He has	
	three times as many 10p coins as 20p coins	
	a total of £17	
	Herry many 40n asing does he have?	
	How many 10p coins does he have?	marks]
	•	•
	Answer	
	THICKOT	
	Turn over for the next question	

15	A company has bikes for hire. The cost, £ $C$ , to hire a bike for $n$ days is given by the formula $C = 12 + \frac{27}{4}(n-1)$	
15 (a)	Write down the cost to hire a bike for 1 day.	[1 mark]
	Answer £	
15 (b)	Special offer	
	Special offer  Hire a bike for £9 per day	
	Is it cheaper to hire a bike for 7 days using the special offer?  You <b>must</b> show your working.	[2 marks]

**15 (c)** The graph shows the cost to hire a bike for one to five days at a different company.



The cost, £C, to hire a bike for n days using this company is given by the formula

$$C = a + b(n-1)$$

Work out the values of a and b.

[3 marks]

$$a =$$

$$b =$$

# 16 A company's logo

- is a pentagon
- has exactly one line of symmetry
- has sides with whole number lengths
- has a perimeter of 15 cm

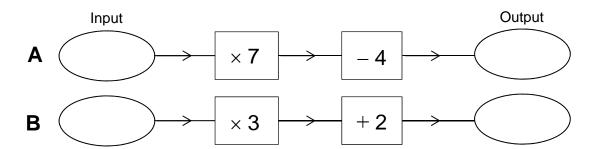
Draw a sketch of a possible logo.

Label each side with its length.

[2 marks]

Mr Jones works for five days each week.	
If he uses his car to travel to work,	
each day he drive a total distance of 24.2 miles	
his car travels 32.3 miles per gallon of petrol	
petrol costs £1.27 per litre.  If he uses the bus to travel to work, he can buy a weekly ticket for £19.50	
Use 1 gallon = 4.5 litres	
Is it cheaper if he uses his car or the bus to travel to work?  You <b>must</b> show your working.	
	[5 marks]
Answer	-

Here are two number machines, **A** and **B**.



Both machines have the same input.

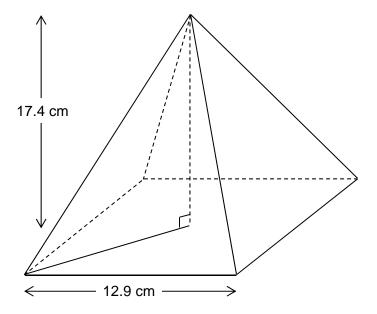
Work out the input that makes

[4 marks]	the output of <b>A</b> three times the output of <b>B</b> .

Answer

19	Josef runs 400 metres in 1 minute.  He assumes he can run any distance at the same rate.  He says,  "I would run 10 000 metres in 25 minutes."  Tick a box to show whether his time to run 10 000 metres is likely to be accurate.
	No, the time will be longer
	Yes, the time will be 25 minutes
	No, the time will be shorter
	Give working and a reason to support your answer.  [2 marks]
20	Which sequence is a geometric progression?  Circle your answer.  [1 mark]
	1 2 3 4 1 2 4 7
	1 2 4 8 1 2 3 5

21 This pyramid has a square base.



Volume of a pyramid =  $\frac{1}{3}$  × area of base × perpendicular height

Work out the volume of the pyramid.

 [3 marks]

Answer \_\_\_\_\_ cm<sup>3</sup>

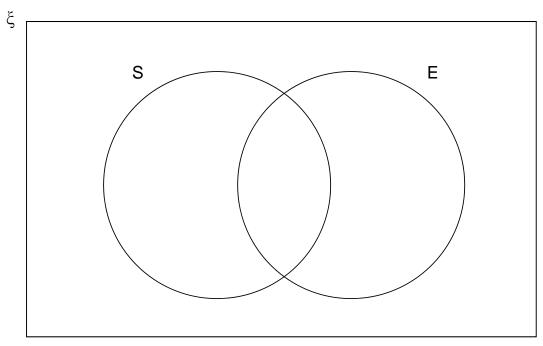
**22**  $\xi = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12\}$ 

S = square numbers

E = even numbers

22 (a) Complete the Venn diagram.

[3 marks]



**22 (b)** One of the numbers is chosen at random.

Write down  $P(S \cap E)$ 

[1 mark]

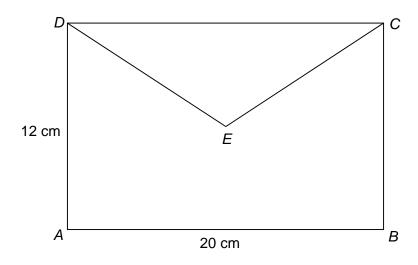
Answer

			Number of wins	Number of losses	
		Meera	6	44	
		John	28	72	
3 (a)	Work out	two different e	estimates for the probab	ility of winning.	[2 mark
			Answer	and	
3 (b)				r the probability of winning	?
	Give a rea	ason for your a	nswer.		[1 mar
	Answer				
	Reason				

4	In a sale, the original	price of a bag was i	reduced by $\frac{1}{-}$		
•	The sale price of the		5		
	Work out the original	price.			
					[3 marks]
		Answer £			
	Which of these is <b>no</b>	t used to prove that	triangles are congru	ent?	
	Circle your answer.				[1 mark]
	SSS	SAS	AAA	RHS	
		<b>3</b> , 13			
		Turn over for the	next question		

E is the centre of rectangle ABCD.

Not drawn accurately



Work out the length *DE*.

[3 marks]

∆nswer	cm

27 Circle the equation of a line that is parallel to y = 5x - 2

[1 mark]

$$y = 2x - 5$$
  $y = 5x + 2$   $y = 3x - 2$   $y = -\frac{1}{5}x - 2$ 

00	۸ ، -	1 1
28	AT A	school

number of boys : number of girls = 9:7

There are 116 **more** boys than girls.

Work out the total number of students at the school.

[3 marks]

-		

Answer
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29 Circle the equation with roots 4 and -8

[1 mark]

$$4x(x-8)=0$$

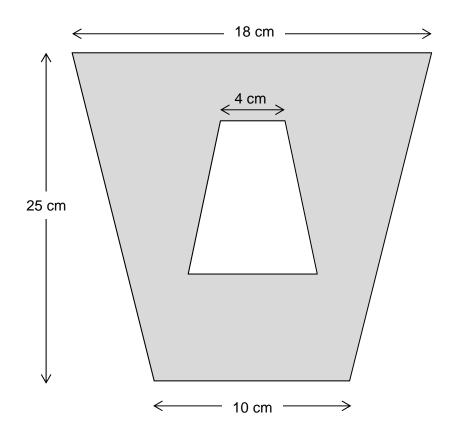
$$(x-4)(x+8)=0$$

$$x^2 - 32 = 0$$

$$(x+4)(x-8)=0$$

**30** A pattern is made from two **similar** trapeziums.

Not drawn accurately



Show that the shaded area is 294 cm<sup>2</sup>

[4 marks]

## **END OF QUESTIONS**

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