

Please write clearly in	block capitals.		
Centre number		Candidate number	
Surname			
Forename(s)			
Candidate signature			

GCSE MATHEMATICS

Thursday 7 November 2019

Foundation Tier Paper 2 Calculator

F

For this paper you must have:

a calculator

Materials

· mathematical instruments.



Morning

Instructions

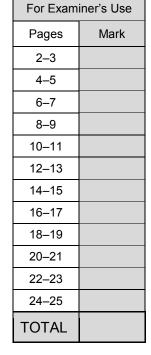
- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- Answer all questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book. Cross through any work you do not want to be marked.

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.

Advice

In all calculations, show clearly how you work out your answer.



Time allowed: 1 hour 30 minutes



Answer all questions in the spaces provided

Simplify 8a - 3a + aCircle your answer.

[1 mark]

4*a*

6*a*

5 + *a*

 $8a - 3a^2$

Which of these numbers is three less than a square number?

Circle your answer.

[1 mark]

5

19

22

34

3 Circle the length of time between 1.50 pm and 3.35 pm

[1 mark]

1 h 45 min

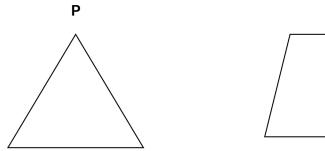
2 h 15 min

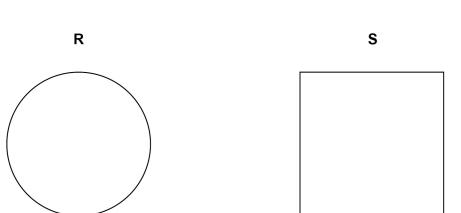
2 h 25 min

3 h 5 min

4 Circle the letter of the shape that has rotational symmetry of order 2 [1 mark]

Q





Turn over for the next question



5		Here are	e eight nu	ımbers.							
		4	10	9	3	4	12	5	14		
5	(a)	Work ou	ut the rang	ge.						[1 mark]
				Answer _							
5	(b)	Work ou	ut the med	dian.						[2	marks]
										_	
				Answer _							



A shop has this of	fer.		
	£5 reduction if you spend more than £100 or		
	£10 reduction if you spend more than £150 or		
	£20 reduction if you spend more than £200		
At the shop, dress	es cost £42 each.		
Amira buys 3	dresses.		
Bobbi buys 5	dresses.		
How much more t	han Amira does Bobbi pay?	[3 marks]	
Α	nswer £	-	

Turn over for the next question

6



1	1	
ı	ι	,

Chicken			
Beef			
Turkey			
Veggie			

[3 marks]

11 $c = 250 - 16^2$

$$d = \frac{18 \times 14}{-28}$$

Work out the value of $c \times d$

[2 marks]

Answer

When a spinner is spun, it shows

Blue (B) or Green (G) or Red (R) or White (W).

When a coin is tossed, it shows

Heads (H) or Tails (T).

The spinner is spun and the coin is tossed.

Complete this list of possible outcomes.

[2 marks]

ВН

7



13 A quadrilateral PQRS has

PQ = 5 cm

QR perpendicular to PQ

QR = 7 cm

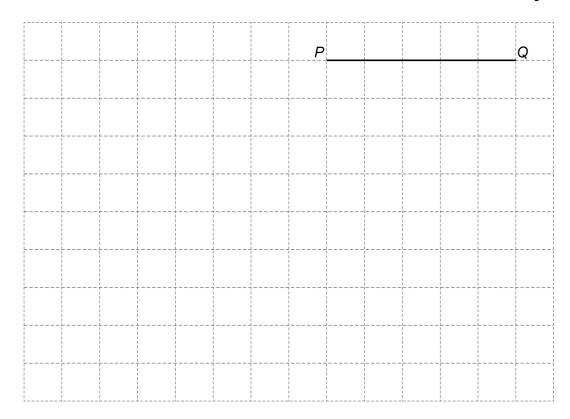
angle $QPS = 135^{\circ}$

PS = 8.5 cm

On the grid, draw the quadrilateral PQRS.

PQ has been drawn for you.

[4 marks]





14	Circle the solid that has six vertices. [1 ma						
	cone	cuboid	trian	gular prism	square-based pyramid		
15	Which of the	se fractions is clos	er in value	to 1?			
			$\frac{3}{4}$	13 10			
	You must s	how your working.			[2 marks]		
		Answer					
		Turn ove	er for the r	next question			



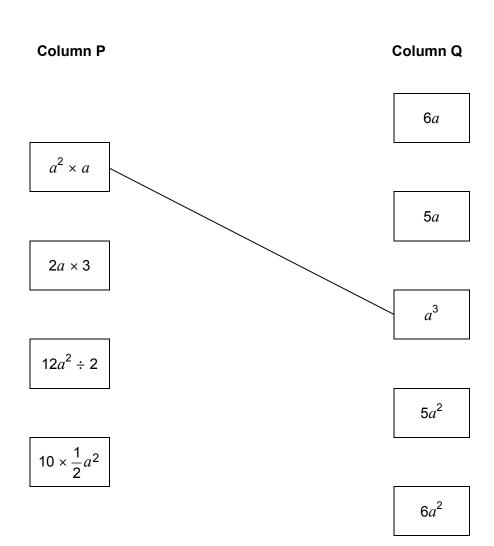
Three teams, A, B and C, play in a competition.	
games won by A : games won by B = 2 : 1	
games won by B : games won by C = 3 : 1	
Team B has won 6 games.	
In total, how many games have the three teams won?	[3 mar
Answer	



Match each expression in Column P with the equivalent expression in Column Q.

One has been done for you.

[3 marks]



Turn over for the next question

6

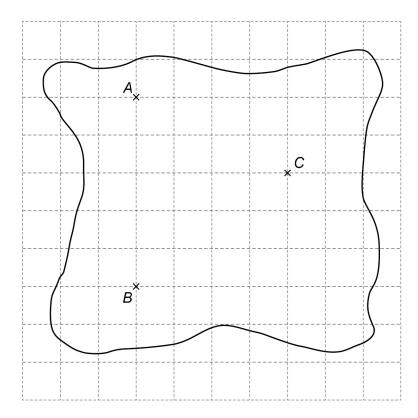
Instructions						
Add an amount of water that is between 2 times and 3 times the amount of juice						
Rana has 120 ml of juice.						
She adds some water.						
She has now made 450 ml of the drink.						
Has Rana followed the instructions?						
You must show your working. [3 marks						



Do not write outside the box 19 A rhombus is cut along the diagonals to make four triangles. Not drawn accurately Which three statements are correct for any rhombus? Tick three boxes. [2 marks] All four triangles are right-angled All four triangles are isosceles All four triangles are congruent Area of rhombus = $4 \times$ area of one triangle Perimeter of rhombus = $4 \times \text{perimeter}$ of one triangle Turn over for the next question



- A map of an island is shown on a centimetre grid.
 - A, B and C are houses.



20 (a) The actual distance between *A* and *B* is 1500 metres.

Show that the scale on the map is 1:30000

·	[2 marks]



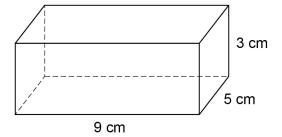
	Work out the actual distance between <i>A</i> and <i>C</i> . Give your answer in kilometres.	[4 mark
-		
-		
-		
-		
-		
-		
-		
_		
	Answer km	
C	$oldsymbol{a}$ and $oldsymbol{b}$ are both prime numbers.	
-	They are each less than 20	
(Give an example where $a+b$ is odd but not prime.	
		[2 marl
-		
-		
-		
	a = b =	

__



Do not	write
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L	

22	Hara is	a cuboid.
44	1 1010 13	a cubbiu.



The two largest faces are blue.

The other four faces are green.

Is the total blue area greater than the total green area?

You **must** show your working.

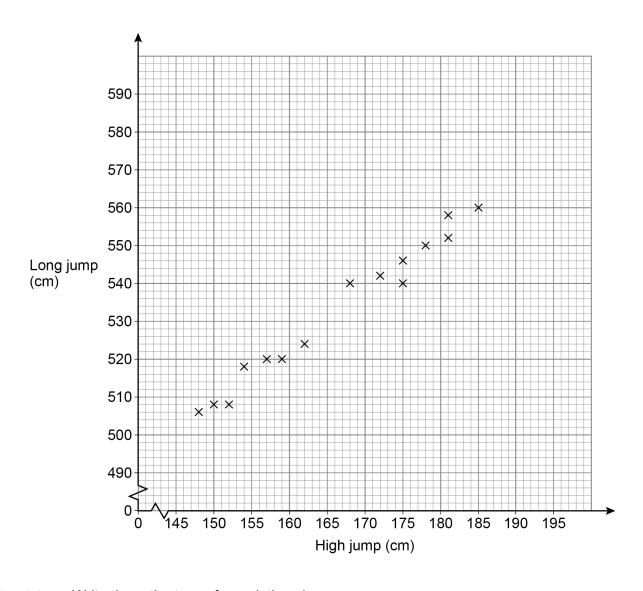
[3 marks]



	a game is Win, Lose or Draw.	
After 80 gam		
	frequency of the result Win is 0.4	
relative	frequency of the result Lose is 0.25	
How many of	the games had the result Draw?	
		[3 marks]
	Answer	
Work out the	lowest common multiple (LCM) of 120 and 144	
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Work out the		
Work out the	lowest common multiple (LCM) of 120 and 144 Answer	
Work out the		



The scatter graph shows the best high jump and the best long jump for 15 boys.



25 (a) Write down the type of correlation shown.

[1 mark]

Answer



		21		
25	(b)	Liam has a best high jump of 166 cm Use a line of best fit to estimate his best long jump.		Do not write outside the box
		3,	[2 marks]	
		Answer	cm	
25	(c)	Another boy has a best high jump of 195 cm		
	(0)	Give a reason why you should not use a line of best fit to estimate	his best long jump.	
			[1 mark]	
				-
				-

Turn over for the next question



A car jou	ney is in two stages.		
Stage 1	The car travels 110 miles in 2 hou	ırs.	
Stage 2	The car travels 44 miles at the sa	me average speed as Stage 1	
Work out	the time for Stage 2		
Give you	answer in minutes.		7 0 I
			[3 marks
	Answer	minutes	
Hana ia a	a i al a mété.		
Here is a			
а	$(3x-10) \equiv 21x+2b$		
Work out	the values of a and b .		
			[3 mark
	a =	b =	



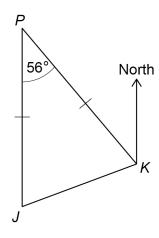
28 J and K are ships.

P is a port.

J is due South of P.

Angle JPK = 56°

JP = KP



Not drawn accurately

Work out	the	bearing	of	J	from	K.
----------	-----	---------	----	---	------	----

[3	ma	rks
----	----	-----

Answer		

Turn over for the next question

9



29	The 5th term of a linear sequence is 17	
	The 6th term of the sequence is 21	
	Work out the 100th term of the sequence.	[3 marks]
	Answer	_
30	$\mathbf{a} = \begin{pmatrix} 2 \\ 7 \end{pmatrix} \qquad \mathbf{b} = \begin{pmatrix} 5 \\ -2 \end{pmatrix}$	
	Work out 3 a + b	[2 marks]
	Answer	

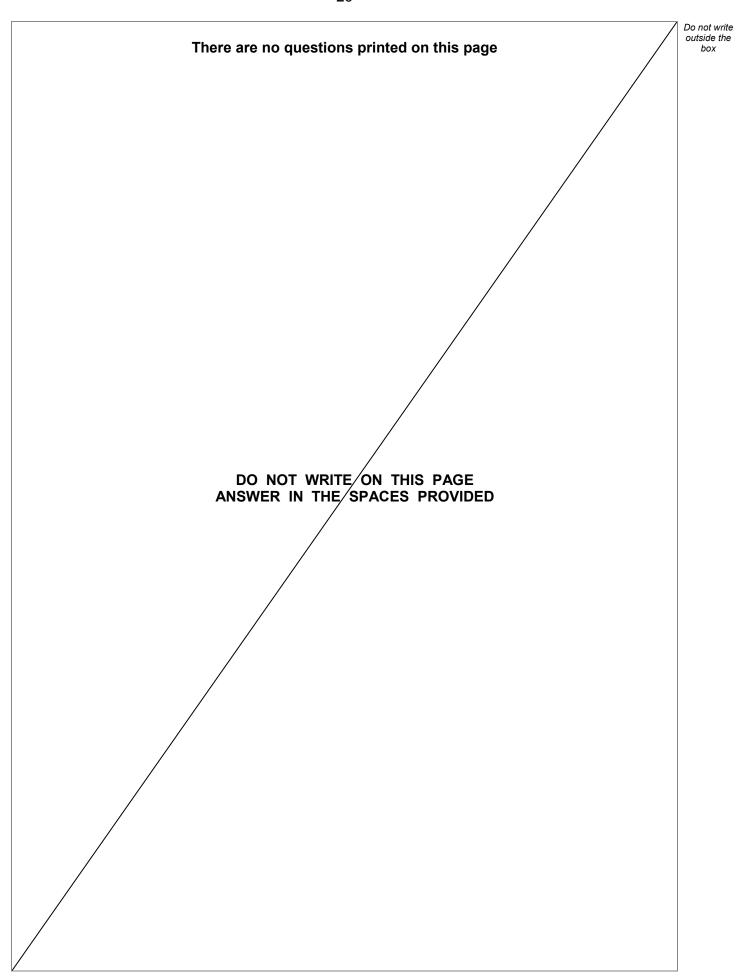


	Do ou
The value of a house is £120 000	
The value is expected to increase by 5% each year.	
Work out the expected value after 4 years.	
Give your answer to 2 significant figures.	
You must show your working.	
[4 marks]	
Answer £	

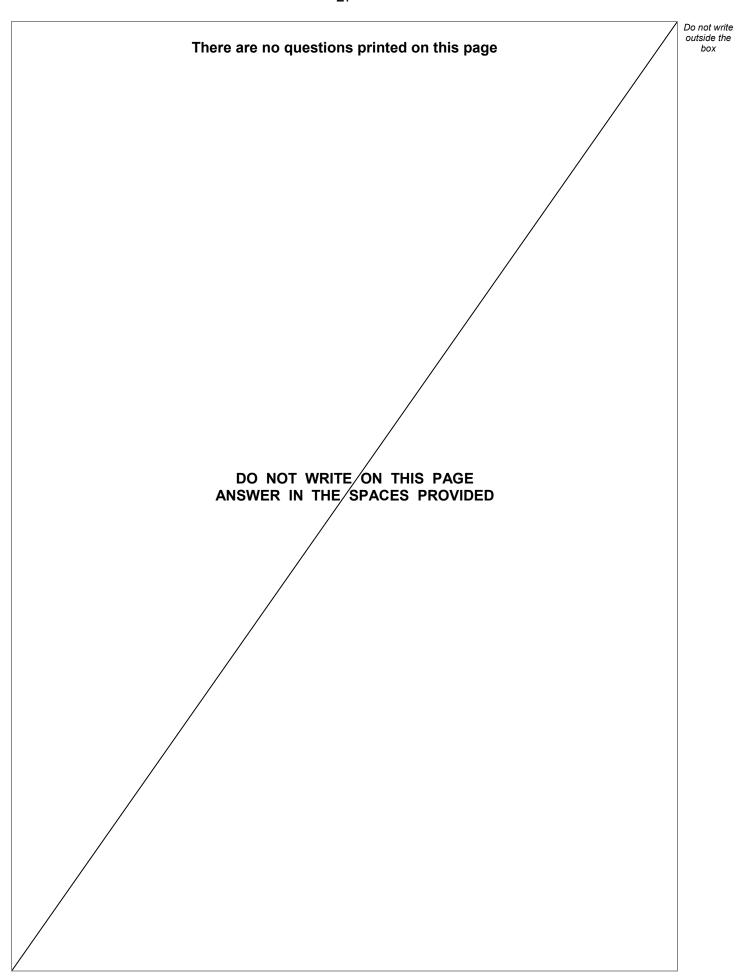
END OF QUESTIONS

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