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Centre number		Candidate number	
Surname			
Forename(s)			
Candidate signature			

GCSE MATHEMATICS

Paper 3 Calculator



Foundation Tier

Monday 11 November 2019 Time allowed: 1 hour 30 minutes Afternoon

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 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.



For Examiner's Use				
Pages	Mark			
2–3				
4–5				
6–7				
8–9				
10–11				
12–13				
14–15				
16–17				
18–19				
20–21				
22–23				
TOTAL				

Answer all questions in the spaces provided

1 On a circle, which of these is not a straight line? Circle your answer.

[1 mark]

- circumference
- radius
- chord
- diameter

2 Circle the expression that can be written as 3cd

[1 mark]

$$3 + c + c$$

$$3+c+d$$
 $c+c+c+d$ $c \times c \times c \times d$ $3 \times c \times d$

$$c \times c \times c \times a$$

$$3 \times c \times d$$

3 Which two numbers, when added together, make a cube number? Circle your answer.

[1 mark]

- 1 and 8
- 2 and 4
- 9 and 18
- 8 and 64

4	Convert $2\frac{1}{2}$ kilograms into grams.
---	--

Circle your answer.

[1 mark]

25 grams

250 grams

2500 grams

25 000 grams

5 (a) Convert $\frac{47}{8}$ to a mixed number.

[1 mark]

Answer

5 **(b)** Convert $\frac{61}{128}$ to a decimal.

Give your answer to 2 decimal places.

[2 marks]

Answer

6	George buys some food for £16.55	
	He pays the exact amount with two notes and four coins.	
	List the notes and coins.	[2 marks]
		[z marks]

No	otes	 		
Coins				

is equal to

7 Choose **one** of the following to make a correct statement each time.

is less than

When a = 3

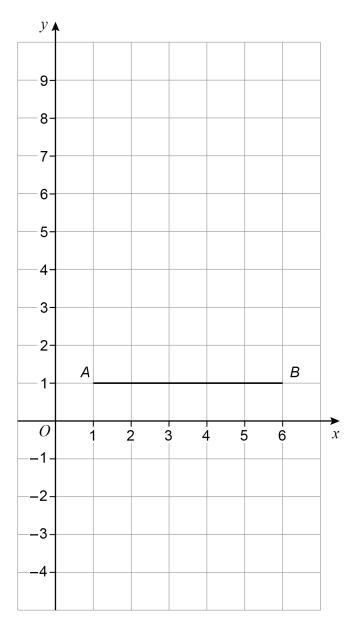
[4 marks]

is greater than

When
$$b = 8$$
 $2b - 6$ ______ 18 - b

When
$$d = -1$$
 d _____ d^2

A line joins A(1, 1) and B(6, 1) on a centimetre grid.



P is a point on the line AB such that

$$AP : PB = 2 : 3$$

C is a point such that

angle APC is 90°

and

PC = 4 cm

Write down the coordinates of the **two** possible points for *C*.

[3 marks]

Answer (_____, ____) and (_____, ____)



14 (a)	The term-to-term rule for a sequence is	Do not wri outside th box
	add 4 then divide by 2	
	The 1st term of the sequence is 36	
	Work out the 3rd term. [2 marks]	
	Answer	
4 (b)	The term-to-term rule for a different sequence is	
	divide by 3 then add 10	
	The 2nd term of this sequence is 60	
	Work out the 1st term. [2 marks]	
	Answer	

Turn over ▶

10



15	The table shows the cost of hiring a	concre	te mixe	r for up	to 5 day	ys.	
	Number of days	1	2	3	4	5	
	Cost	£14	£24	£34	£44	£54	
	Eva hires the concrete mixer for 5 d She says, "The rate is £14 per day beca		cost for	· 1 day i	s £14"		
	Is she correct?						
	Give a reason for your answer.						[2 marks]
16	x is a negative number.						
	Which statement is correct?						
	Tick one box.						
							[1 mark]
	x + 10 is alv	vays po	sitive				

x + 10 is always negative

x + 10 cannot be zero

x + 10 could be positive or negative or zero



17 The table shows the number of films watched one week by 30 people.

Number of films	Frequency	
0	5	
1	9	
2	8	
3	6	
4	2	

Total = 30

17	(a)	Write down the modal number of films watched.	[1 mark]
		Answer	
17	(b)	Work out the mean number of films watched per person.	[3 marks]
		Answer	

Turn over ►

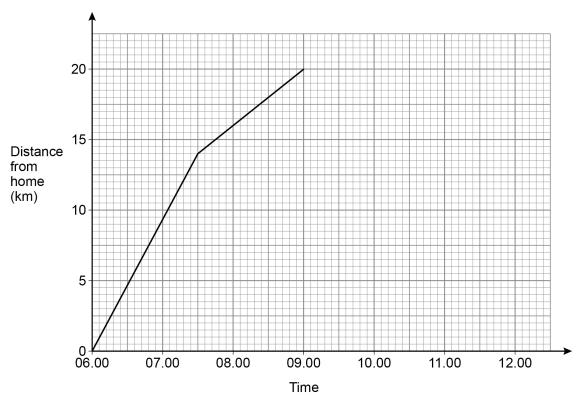


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Jenny leaves home at 06.00

She runs for 3 hours.

Here is a distance-time graph of her run.



18 (a) How far from home is she after 3 hours?

[1 mark]

Answer	km
ALISWCI	IXII

18 (b) For the next hour she rests.

She then gets a bus home.

She arrives home at 11.30

Complete the distance-time graph.

Assume the bus travels at a constant speed.

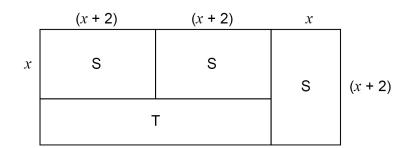
[2 marks]



S and T are rectangles. 19

S has dimensions (x + 2) and x.

Some of these rectangles make the larger rectangle shown.



Not drawn accurately

Work out an expression for the perimeter of T.

Give your answer in its simplest form.

[3 marks]

Answer		

20 a:b=7:1

Circle the correct equation.

[1 mark]

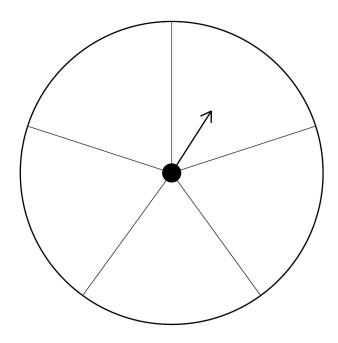
$$a = 7h$$

$$a = 7b$$
 $b = 7a$

$$a = 6b$$

$$b = 6a$$

21 A spinner has five equal sections.



Write a number in each section so that

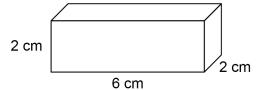
the numbers are all different factors of 100

 $P(\text{single-digit number}) = \frac{3}{5}$

P(multiple of 25) = $\frac{1}{5}$

[3 marks]

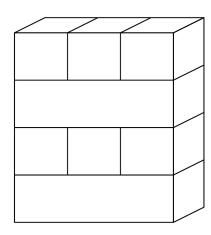






Small cuboids and cubes are stacked in layers to make larger cuboids.

Here is a cuboid made with four layers.



The pattern is continued to make a cuboid with volume 336 cm^3

HOW	many	cubes	ara	110043
HOW	manv	cupes	are	usea?

[3 r	nar	KS]
------	-----	-----

∖nswer			

6



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23	(a)	Tom is tiling a wall.
		He needs to buy at least 100 tiles.
		The tiles are sold in large packs and small packs.
		Large pack 40 tiles £18
		Small pack 28 tiles £14
		Special offer
		25% reduction when you buy 3 or more large packs
		Work out the cheapest cost for Tom to buy the packs of tiles he needs. [3 marks]
		[3 marks]
		Answer £



23 (b) Tom is also tiling a floor.

The floor is a rectangle with length 600 cm and width 240 cm Each tile is a square with side 40 cm

Tom uses this method to work out the number of tiles he needs.

Number of tiles that will fit along the length = $600 \div 40$

= 15

Number of tiles that will fit along the width $= 240 \div 40$

= 6

Total number of tiles needed = 15 + 6

= 21

Give a reason why Tom's method is wrong.

[1 mark]

Turn over for the next question

4

res.

Using ruler and compasses only, construct a scale drawing of the triangle.

Use the scale 1 centimetre represents 2 metres.

[3 marks]

Scale: 1 cm represents 2 m





26 Density =
$$\frac{\text{mass}}{\text{volume}}$$

The mass is divided by 2 and the volume is multiplied by 4

What happens to the density?

Circle your answer.

[1 mark]

$$\times$$
 8

Solve the simultaneous equations 27

$$7x + 2y = 36$$

$$3x + 2y = 16$$

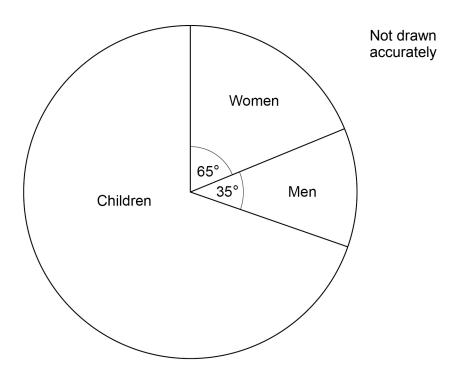
[3 marks]

$$x =$$



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The pie chart shows information about people at a theme park.



There were 450 more women than men.

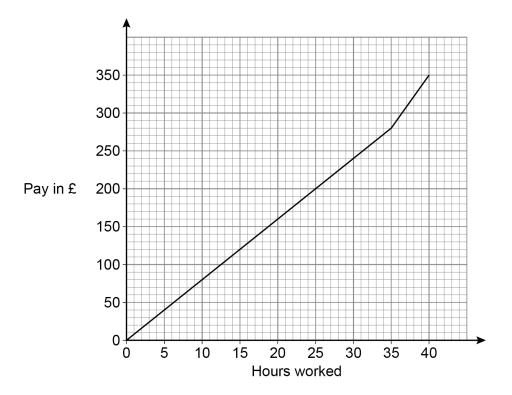
Work out the number of children.	[3 marks]
Answer	





The graph shows how much Molly is paid for working for up to 40 hours. She receives

a basic rate of pay for the first 35 hours worked a higher rate of pay for the next 5 hours worked.



Work out the difference between the higher rate of pay and the basic rate of pay.

Give your answer in £ per hour.

[3 marks]

Answer £_____ per hour

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	Vork out	
	cube root of 512 : reciprocal of 0.4	
G	Give your answer in the form $n:1$	[2 marka]
		[3 marks]
_		
_		
	Answer : :	
U	Use trigonometry to work out the value of x .	
		Not drawn
		accurately
	20 am	
	20 cm	
	39°\	
	X	[2 marks]
_		
_		
_		
_		
	Answer	cm
	END OF QUESTIONS	
	END OF QUESTIONS	



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