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CAMBRIDGE INTERNATIONAL MATHEMATICS

0607/02

Paper 2 (Extended)

For examination from 2020

SPECIMEN PAPER 45 minutes

You must answer on the question paper.

You will need: Geometrical instruments

INSTRUCTIONS

- Answer all questions.
- Use a black or dark blue pen. You may use an HB pencil for any diagrams or graphs.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
- Do not use an erasable pen or correction fluid.
- Do not write on any bar codes.
- Calculators must **not** be used in this paper.
- You must show all necessary working clearly and you will be given marks for correct methods even if your answer is incorrect.
- All answers should be given in their simplest form.

INFORMATION

- The total mark for this paper is 40.
- The number of marks for each question or part question is shown in brackets [].

This document has 8 pages. Blank pages are indicated.

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Formula List

For the equation

$$ax^2 + bx + c = 0$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Curved surface area, A, of cylinder of radius r, height h.

$$A = 2\pi rh$$

Curved surface area, A, of cone of radius r, sloping edge l.

$$A = \pi r l$$

Curved surface area, A, of sphere of radius r.

$$A = 4\pi r^2$$

Volume, V, of pyramid, base area A, height h.

$$V = \frac{1}{3}Ah$$

Volume, V, of cylinder of radius r, height h.

$$V = \pi r^2 h$$

Volume, V, of cone of radius r, height h.

$$V = \frac{1}{3}\pi r^2 h$$

Volume, V, of sphere of radius r.

$$V = \frac{4}{3}\pi r^3$$

$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$a^2 = b^2 + c^2 - 2bc \cos A$$

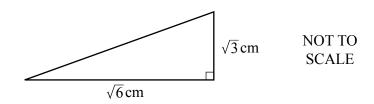
$$Area = \frac{1}{2}bc \sin A$$

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Answer all the questions.

1	Find the highest common factor (HCF) of 60 and 90.	
		[1]
2	Insert one pair of brackets to make the statement correct.	
	$5 - 2 + 3 \times 2 = -5$	[1]
3	$\mathbf{p} = \begin{pmatrix} 2 \\ 3 \end{pmatrix} \qquad \mathbf{q} = \begin{pmatrix} 1 \\ 6 \end{pmatrix}$	
	Find $2\mathbf{p} - 3\mathbf{q}$.	
4	Write 0.72 as a fraction in its lowest terms.	
		[1]
5	The mean of a list of 9 numbers is 6. When a 10th number is included in the list the mean is 5.5.	
	Find the value of this 10th number.	
		[2]

6



Find the length of the hypotenuse of the triangle.

cm	[2]
----	-----

7 Solve the simultaneous equations.

$$u - w = 9$$
$$3u + w = 19$$

<i>u</i> =	
w =	 [2]

8 The scale of a map is 1:250000.

Find the actual distance, in kilometres, between two cities which are 42 cm apart on the map.

.....km [2]

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9	x < 4 and x is an integer.	
	Find the smallest possible value of x .	
		[1]
10	The first 4 terms of a sequence are 20, 13, 6 and -1.	
	Find	
	(a) the next term,	
		[1]
	(b) the <i>n</i> th term.	
	(b) the nth term.	
		[2]
11	Make u the subject of the formula.	
	$v^2 = u^2 + 2as$	
		u = [2]
10		
12	Factorise completely. $2a - b + 2ax - bx$	
	2a - b + 2ax - bx	

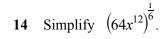
13	Find	the	evact	772	liia.	Δt
13	I IIIu	uic	CAACL	vα	ıuc	() 1

(a)	2^{-3}
(a)	Ι,



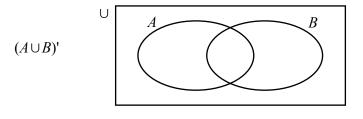
(b)
$$16^{\frac{3}{4}}$$
,

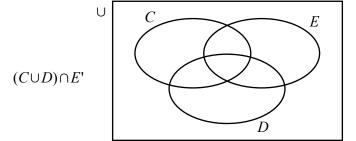
	[1		
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15 On each Venn diagram, shade the region indicated.





[2]

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16	Find the equation of the strai	gnt line passing through $(-2, -4)$ and $(-2, -4)$	2, 0).	
			[3	3]
17	Rationalise the denominator.			
		$\frac{3}{\sqrt{5}+2}$		
			[2	<u>'</u>]
18	(a) Factorise $3y - y^2$.			
			F1	1
			[1	·]
	(b) Simplify $\frac{3y - y^2}{9 - y^2}$.			
	$y-y^2$			
			ra	١٦

Questions 19 and 20 are printed on the next page.

4.0	T 1	. 1	1	
19	Find	the	value	ot

(a)
$$\frac{\log 4}{\log 8}$$

.....[2]

(b) $\log_4 8$.

.....[1]

20 $g(x) = \frac{2x+1}{x-1}, x \neq 1$

Solve the equation $g^{-1}(x) = 2$.

x = [1]

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