

# **Cambridge International Examinations**

Cambridge International General Certificate of Secondary Education

CANDIDATE NAME					
CENTRE NUMBER			CANDIDATE NUMBER		

# 0 2 9 7 6 0 9 3 3

# **CAMBRIDGE INTERNATIONAL MATHEMATICS**

0607/21

Paper 2 (Extended) October/November 2018

45 minutes

Candidates answer on the Question Paper.

Additional Materials: Geometrical Instruments

### **READ THESE INSTRUCTIONS FIRST**

Write your Centre number, candidate number and name on all the work you hand in.

Write in dark blue or black pen.

Do not use staples, paper clips, glue or correction fluid.

You may use an HB pencil for any diagrams or graphs.

DO **NOT** WRITE IN ANY BARCODES.

Answer all the questions.

### CALCULATORS MUST NOT BE USED IN THIS PAPER.

All answers should be given in their simplest form.

You must show all the relevant working to gain full marks and you will be given marks for correct methods even if your answer is incorrect.

The number of marks is given in brackets [ ] at the end of each question or part question.

The total number of marks for this paper is 40.



# 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.

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

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

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

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

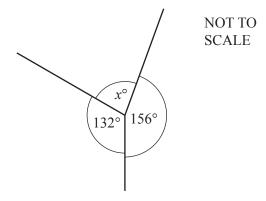
# Answer all the questions.

1 Work out.

 $-7 \times -5$ 

.....[1]

2



Find the value of x.

$$x =$$
 [1]

**3** A bag contains 8 blue balls, 3 red balls and 4 green balls only. One ball is chosen at random.

Find the probability that this ball is red. Give your answer as a fraction in its simplest form.

	[2]
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4 Write  $3^{-2}$  as a fraction.

5 Solve.

$$6x - 5 = 19$$

$$x =$$
 [2]

6	Find the lowest common multiple (LCM) of 12 and 15.
7	Find the size of one exterior angle of a regular octagon.
	[2]
8	The point $A$ has co-ordinates $(1, 9)$ . The point $B$ has co-ordinates $(4, 5)$ .
	Find the length of $AB$ .
9	Simplify. $(5x^4y^3)^2$
	[2]

10	List the integer values of x for which $-4 \le 2x < 6$ .
	[2]
11	Simplify.
	$\sqrt{32} - \sqrt{72} + \sqrt{50}$
	[2]
12	Find the next term and an expression for the <i>n</i> th term of the following sequence.
	$-9,  -3,  7,  21,  39,  \dots$
	next term =
	nth term =[3]
13	The bearing of point $B$ from point $A$ is 234°.
	Work out the bearing of point $A$ from point $B$ .
	[2]

14	Solve the simultaneous equations.			
		3x + 2y = 4 $2x - 3y = 7$		
		2N 3y 1		
			r =	
				Γ <i>1</i> 1
			<i>y</i> –	 [4]
15	Factorise.			
	$4x^2 - 7x - 2$			
				 [2]
16	A bag contains 4 red balls and 5 blue balls of Two balls are chosen at random without rep			
	Find the probability that the two balls chose	en are different colo	urs.	
				 [3]

4 =	D .: 1:	.1 1				• , •	1
17	Rationalise	the dend	minator	giving your	angwer in	ite eimi	nlest torm
1 /	Tationansc	tile delle	minutor,	Siving your	uns wer m	163 31111	Diest Iolili.

$$\frac{5+\sqrt{3}}{5-\sqrt{3}}$$

18 The surface area of a sphere with radius r is equal to the curved surface area of a cone with radius r and height h.

Show that  $h = r\sqrt{k}$ , where k is a constant.

[4]

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