

Cambridge Assessment International Education Cambridge International General Certificate of Secondary Education

	CANDIDATE NAME		
*	CENTRE NUMBER		CANDIDATE NUMBER
	MATHEMATICS		0580/22
	Paper 2 (Extended)		October/November 2019
			1 hour 30 minutes
0	Candidates answer	on the Question Paper.	
	Additional Materials:	Electronic calculator Tracing paper (optional)	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.

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

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

DO NOT WRITE IN ANY BARCODES.

Answer all questions.

If working is needed for any question it must be shown below that question.

Electronic calculators should be used.

If the degree of accuracy is not specified in the question, and if the answer is not exact, give the answer to three significant figures. Give answers in degrees to one decimal place.

For π , use either your calculator value or 3.142.

At the end of the examination, fasten all your work securely together.

The number of marks is given in brackets [] at the end of each question or part question. The total of the marks for this paper is 70.

This document consists of 11 printed pages and 1 blank page.

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6 The table shows how children in Ivan's class travel to school.

Travel to school	Number of children
Walk	12
Car	7
Bicycle	9
Bus	4

Ivan wants to draw a pie chart to show this information.

Find the sector angle for children who walk to school.

7 Rashid changes 30 000 rupees to dollars when the exchange rate is \$1 = 68.14 rupees.

How many dollars does he receive?



The bearing of *P* from *B* is 102° .

Find the bearing of B from P.

3

- 9 Solve the inequality.
- $\frac{x}{2} 13 > 12 + 3x$

......[2]

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Write the recurring decimal 0.67 as a fraction.Show all your working and give your answer in its simplest form.

.....[2]

11 Without using a calculator, work out $3\frac{5}{8} - 1\frac{2}{3}$. You must show all your working and give your answer as a mixed number in its simplest form.

.....[3]

12 A regular polygon has an interior angle of 176°.

Find the number of sides of this polygon.

......[3]



13 Two mathematically similar containers have heights of 30 cm and 75 cm. The larger container has a capacity of 5.5 litres.

Calculate the capacity of the smaller container. Give your answer in millilitres.

..... ml [3]

14 Show that the line 4y = 5x - 10 is perpendicular to the line 5y + 4x = 35.

[3]

- 15 Esme buys *x* magazines at \$2.45 each and *y* cards at \$3.15 each.
 - (a) Write down an expression, in terms of x and y, for the total cost, in dollars, of the magazines and the cards.

(b) Esme spends \$60.55 in total. She buys 8 magazines.

How many cards does she buy?



By shading the **unwanted** regions of the grid, find and label the region R that satisfies the following inequalities.

$$y \leqslant 5 \qquad 2x + y \ge 6 \qquad y \ge x + 1 \tag{4}$$

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Lei has a bird table in the garden that is

• equidistant from *PQ* and *QR*

and

• 13 m from *R*.

On the diagram, construct the position of the bird table. **Use a ruler and compasses only** and show all your construction arcs.

18 Harris is taking a driving test.

The probability that he passes the driving test at the first attempt is 0.6. If he fails, the probability that he passes at any further attempt is 0.75.

Calculate the probability that Harris

(a) passes the driving test at the second attempt,

......[2]

(b) takes no more than three attempts to pass the driving test.

[4]



In the diagram, *A*, *B*, *C* and *D* lie on the circumference of a circle, centre *O*. Angle $ACD = x^{\circ}$ and angle $OAB = 2x^{\circ}$.

Find an expression, in terms of x, in its simplest form for

(a) angle *AOB*,

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Angle $AOB = \dots$ [1]

(b) angle *ACB*,

(c) angle *DAB*.

Angle $DAB = \dots$ [2]



b) $x^{3} = 32x^{2}$

Find the value of x.

x = [3]

10
22
$$A = \begin{pmatrix} 3 & 2 \\ -5 & 0 \end{pmatrix}$$
 $B = \begin{pmatrix} -2 & 5 \\ 4 & 1 \end{pmatrix}$ $C = (-1 \ k)$
(a) Find AB.
(b) [2]

(b) CA = (-13 - 2)

Find the value of *k*.

(c) Find A^{-1} .





The speed-time graph shows information about a train journey.

(a) By drawing a suitable tangent to the graph, estimate the gradient of the curve at t = 24.

......[3]

(b) What does this gradient represent?

......[1]

(c) Work out the distance travelled by the train when it is travelling at constant speed.

...... km [2]



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