

CANDIDATE
NAME

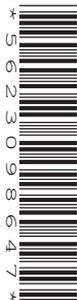
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CENTRE
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MATHEMATICS

Paper 3 (Core)

0626/03

October/November 2018

1 hour 30 minutes

Candidates answer on the Question Paper.

Additional Materials: Geometrical instruments
 Tracing paper (optional)

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.

CALCULATORS MAY NOT BE USED IN THIS PAPER.

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

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.

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 84.

This syllabus is regulated for use in England as a Cambridge International Level 1/Level 2 (9–1) Certificate.

This document consists of **15** printed pages and **1** blank page.

- 1 Work out the temperature that is 5 degrees higher than -3°C .

..... $^{\circ}\text{C}$ [1]

- 2 (a) Find the sum of 2381 and 247.

..... [1]

- (b) Write 2381 correct to the nearest 100.

..... [1]

- 3 Write 0.28 as a fraction.
Give your answer in its simplest form.

..... [2]

- 4 A train leaves a station at 07 24.
At 09 48, the train has been travelling for half of its journey time.

Work out the time the journey ends.

..... [2]

5 A group of 18 boys were asked to choose their favourite sport.

The results are shown below.

Rugby Tennis Football Athletics Athletics Tennis
 Athletics Rugby Tennis Football Tennis Athletics
 Football Rugby Football Tennis Football Football

Complete the table for these results.

Favourite sport	Tally	Frequency
Athletics		
Football		
Rugby		
Tennis		

[2]

6

5	4	14	6	12	1
---	---	----	---	----	---

(a) For these six numbers, work out

(i) the range,

..... [1]

(ii) the median,

..... [2]

(iii) the mean.

..... [2]

(b) Explain why there is no mode for the six numbers.

..... [1]

- 7 By rounding each number correct to 1 significant figure, estimate the value of

$$\frac{71.2 - 48.9}{4.23}$$

..... [2]

8

=	<	>
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Use the correct symbol from the list above to complete each statement.

$$0.\dot{3} \text{ } 30\%$$

$$\frac{17}{18} \text{ } \frac{17}{19}$$

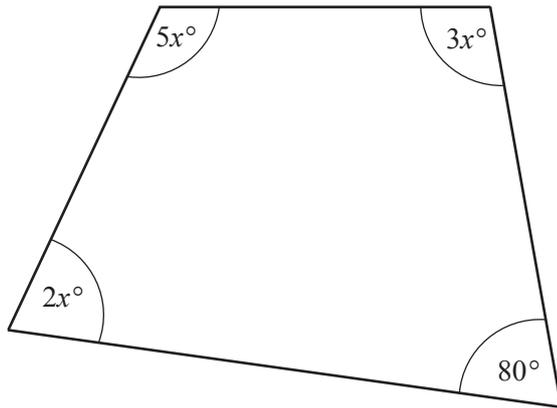
$$0.1 \text{ } \frac{2}{20} \quad [3]$$

- 9 Insert one pair of brackets into each calculation to make it correct.

(a) $16 - 3 + 2 - 7 = 4$ [1]

(b) $7 + 3 \times 6 + 8 \div 2 = 28$ [1]

10

NOT TO
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The diagram shows a quadrilateral.

Work out the value of x .

$$x = \dots\dots\dots [4]$$

11 I think of a starting number.

I multiply it by 3, then I add 20, then I divide by 2 to obtain my answer.

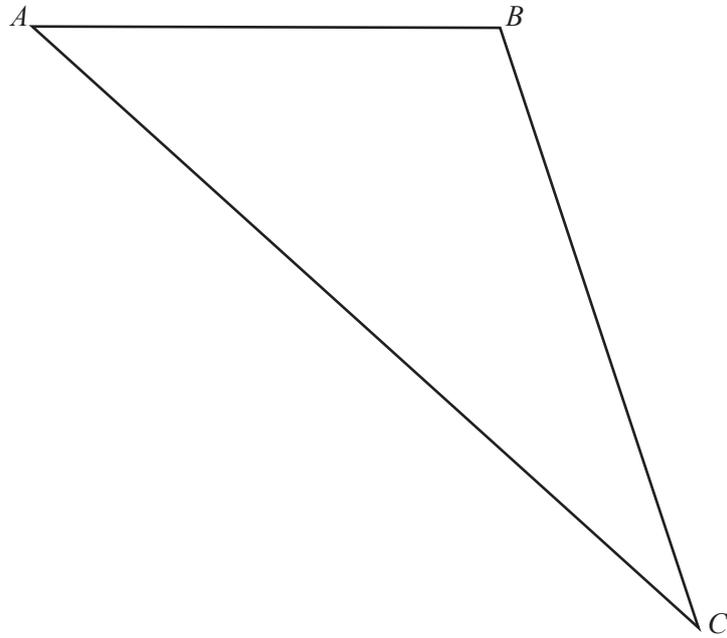
(a) My starting number is -2 , find my answer.

$$\dots\dots\dots [2]$$

(b) My **answer** is 16, find my starting number.

$$\dots\dots\dots [2]$$

- 12 Use a straight edge and compasses only for this question.
Leave in all your construction arcs.



Construct and shade the region inside triangle ABC which is

- closer to C than to A
- and
- closer to side AB than to side AC .

[5]

13

$$\vec{AB} = \begin{pmatrix} 3 \\ -5 \end{pmatrix} \quad \vec{BC} = \begin{pmatrix} 7 \\ 2 \end{pmatrix}$$

(a) Work out $\vec{AB} + \vec{BC}$.

$$\begin{pmatrix} \\ \end{pmatrix} [1]$$

(b) Write down \vec{BA} .

$$\begin{pmatrix} \\ \end{pmatrix} [1]$$

14 (a) Convert 51 000 cm³ to litres.

..... litres [1]

(b) Convert 8 m² to cm²......cm² [1]

15 Evaluate.

(a) 4³

..... [1]

(b) $\sqrt{\frac{4}{9}}$

..... [1]

(c) 2⁰

..... [1]

- 16 Work out the fraction that is exactly halfway between the two fractions $\frac{3}{4}$ and $\frac{4}{5}$.

..... [3]

- 17 The surface area of a cube is 54 cm^2 .

Find the volume of this cube.

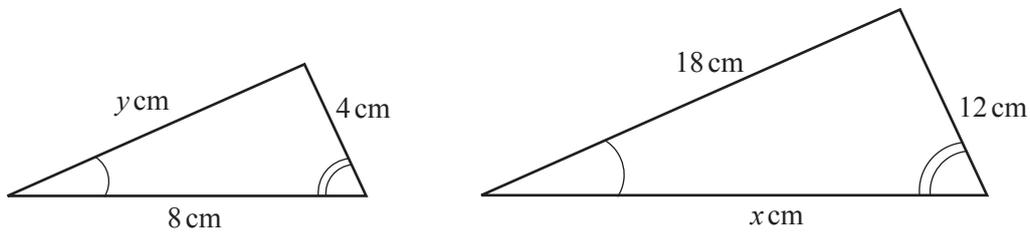
..... cm^3 [3]

18 Rearrange this formula to make w the subject.

$$t = 3w + 2$$

$$w = \dots\dots\dots [2]$$

19 These two triangles are similar.



NOT TO
SCALE

Find the value of x and the value of y .

$$x = \dots\dots\dots$$

$$y = \dots\dots\dots [3]$$

20 Here are two bags of bird seed.



Janice and Tamara are trying to work out which bag of bird seed is better value. The answers to their calculations are correct.

(a) Tamara writes:

$$\frac{3.65}{4.2} = 0.8690 \quad \text{and} \quad \frac{4.80}{5.5} = 0.8727 .$$

As 0.8727 is the bigger number the large bag is better value.

Tamara has made the wrong decision.

Explain how her calculations show that the small bag is better value.

.....
 [1]

(b) Janice writes:

$$\frac{4.2}{3.65} = 1.1507 \quad \text{and} \quad \frac{5.5}{4.80} = 1.1458 .$$

As 1.1507 is the bigger number the small bag is better value.

Janice has made the correct decision.

Explain why the bigger number is better value.

.....
 [1]

21 (a) Solve these simultaneous equations.

$$\begin{aligned} 3x - 6y &= 9 \\ 5x + 2y &= 21 \end{aligned}$$

$$x = \dots\dots\dots$$

$$y = \dots\dots\dots [3]$$

(b) Here is another pair of simultaneous equations.

$\begin{aligned} 5x - 2y &= 11 \\ 5x - 2y &= 35 \end{aligned}$
--

Give a reason why these simultaneous equations cannot be solved.

.....
 [1]

(c)

$\begin{aligned} 3x + 4y &= 12 \\ 6x + 8y &= 24 \end{aligned}$
--

Here are three correct solutions to these equations

$$x = 0, y = 3 \quad \text{and} \quad x = 4, y = 0 \quad \text{and} \quad x = 2, y = 1.5$$

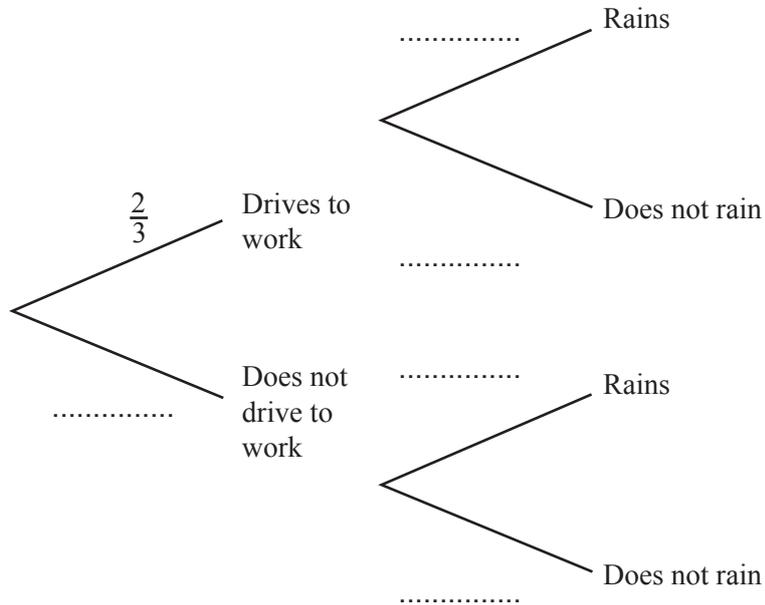
Give a reason why there is more than one correct solution.

.....
 [1]

22 The probability that Marc drives to work on any day is $\frac{2}{3}$.

The probability that it rains on any day is $\frac{1}{5}$.

(a) Complete the tree diagram.



[2]

(b) Work out the probability that one day Marc drives to work and it does not rain.

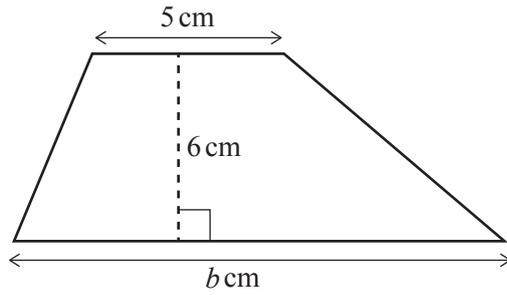
..... [2]

23 Expand and simplify.

$$4(2r + 3) + 3(1 - 5r)$$

..... [2]

24

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The area of this trapezium is 39 cm^2 .

Find the value of b .

$$b = \dots\dots\dots [3]$$

25 The width, $w \text{ cm}$, of an oven is 60 cm correct to the nearest centimetre.

Complete this statement about the value of w .

$$\dots\dots\dots \leq w < \dots\dots\dots [2]$$

26 Work out $(\sqrt[3]{64})^2$.

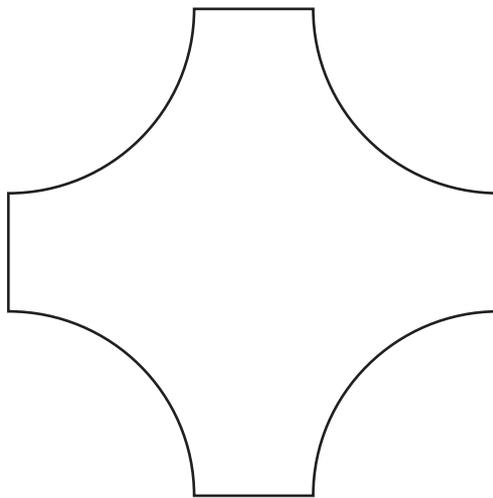
$$\dots\dots\dots [2]$$

27 The interior angle of a regular polygon is 150° .

Show that the polygon has 12 sides.

[2]

28



NOT TO
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This shape is made from four straight edges and four arcs.
Each straight edge has length 3 cm.
Each arc is a quarter of the circumference of a circle of radius 5 cm.

Find the perimeter of this shape.
Give your answer in terms of π .

..... cm [3]

29 Solve $5(7-x) = 55$.

$x = \dots\dots\dots$ [3]

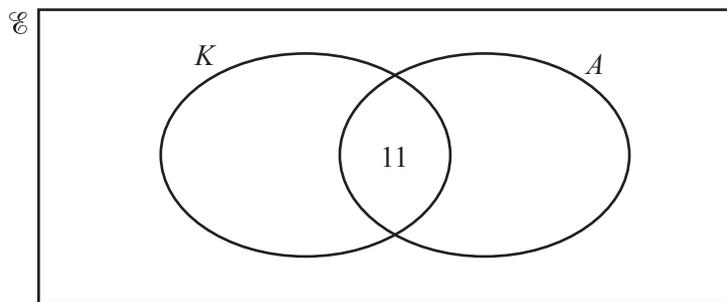
30 A travel company asked 60 people where they went on holiday last year.

- 30 people went on holiday in the UK
- 11 people went on holiday both in the UK and abroad
- 6 people did not go on holiday

$K = \{\text{people who went on holiday in the UK}\}$

$A = \{\text{people who went on holiday abroad}\}$

(a) Complete the Venn diagram to show this information.



[2]

(b) Find $n(A \cup K)$.

$\dots\dots\dots$ [1]

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